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PERSONNEL RELATIONS IN INDUSTRY

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PREFACE

The years of war and readjustment have brought a new conception of the "labor problem" in nearly all industrial nations. Old theories of repression, on one side, and doctrines of sudden millennial conquest, upon the other, are giving way before a clearer realization of facts. The change is due in part to a multitude of enlightening experiences with the actual adjustment of complicated industrial situations; but not less to the definite study of processes and relations within the field of industry itself, and to rapid developments in the allied fields of psychology, sociology, economics, and industrial hygiene. The new interest in industrial relations has developed already an extensive literature. It is less concerned than that of earlier times with dreams and hopes, or with contending industrial theories, and more with records of actual human contact, in shop, mill, mine, factory, and store, and with experiments in adjusting human relations.

Multitudes of facts available for study are already being classified, and where continuous sequences of reactions have appeared, scientific laws have been laid bare. That these laws should be put to everyday use in order to eliminate the waste of "trial and error" is most important.

The present book aims to further the process of classification by pointing out some of the scientific laws which have actually been brought to light. Only the general principles which under careful scrutiny seemed reliable—when dealing with such changing quantities as human beings—have been noted. No effort has been made to refer to every individual instance of the tendencies and principles discussed, as such illustrations may be found in great variety in other books.

In one other respect the plan of this book differs from that of many others. "Human nature" has been made its basic characteristic, because that factor runs uniformly through all industrial problems. Industry exists only for, by, and through human beings and their relations. As far as possible every industrial problem has been analyzed to determine the reactions of human nature to the conditions presented.

The material here set forth represents many years of work. It was first organized for presentation to classes of the Extension Department of the University of Wisconsin, the attendants at which were nearly all executives actively engaged in industrial management—most of them directing some form of personnel work. There was the greatest possible freedom of discussion, and every proposal was subjected to expert criticism as well as to actual test in industrial practice. The work was later entirely rewritten. Specialists were consulted, industrial plants were visited, and every effort was made to insure accuracy as to facts, and conservatism as to conclusions. Thanks are especially due to Professor Earl Dean Howard, Labor Manager of Hart, Schaffner and Marx, who read and criticized the manuscript of the chapters on democracy in industry.

Participation, for nearly a quarter of a century, in nearly all phases of the labor movement leads the author to believe that the contribution of our age to the ever-present problem of labor is the discovery and application thereto of scientific methods of analysis, already applied to so many other fields of human thought and activity. Whatever the future may hold, whatever changes it may bring to industrial relations, the knowledge gained by scientific methods must remain the only safe guide to action.

A. M. SIMONS.

Evanston, Illinois,
March 8, 1921.

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**PERSONNEL RELATIONS
IN INDUSTRY**

CHAPTER I

THE CHANGING VIEWPOINT

The Functionalization of Social Institutions

Every social institution is specialized to perform one function. Interference with this function cripples or destroys the institution. The fundamental function of industry is to produce the goods needed by society, and to this everything else must be secondary. Whatever interferes with production threatens industry and the society built upon it. What-
ever increases production strengthens, improves, and develops industry and makes possible a higher social evolution.

The workings of other institutions illustrate this specialization. The fundamental function of the school is education. During the war the schools were used for many purposes. They collected money for the Treasury Department, aided in Red Cross activities, and gave assistance in many other fields. The future promises a wider extension of activity. Schools will be brought into closer relation with industry. They will be made an integral part of all society. But if this broadening of scope, methods, and work causes the schools to be used in such a way as to interfere with their work of education, they will be crippled and their value reduced.¹

Production the Function of Industry

So whatever changes may be brought into the factory and however great the expansion of its activities, production must always be kept uppermost in mind.

¹ John Dewey, *The Schools of Tomorrow*, 1915, p. 176.

This standard is not so simple of application as it sounds. The object of industry is production through a long period, and not in such sudden spurts as eventually prove harmful to the persons involved. It is the production of goods, not evils, of wealth, not "illth," to use Ruskin's well-known term, that is sought. Production must be primarily of commodities for use, not dollars for income. Industry exists to provide goods for the community, not wages for labor nor profits for employers. Not that industry, as it exists today, can run without producing both wages and profits, any more than machines can run without oil. Still machines are not run to consume oil.

The community needs service first, regardless of who gets the profits, because its life depends upon the service it gets. The business man says profits are more important to him than the service he renders; that the wheels of business shall not turn, whether the community needs the service or not, unless he can have his measure of profit. He has forgotten that his business system had its foundation in service, and as far as the community is concerned has no reason for existence except the service it can render.²

Personnel Relations and Production

This point of view applies to all phases of personnel relations. Employers often speak in an apologetic manner of the increased production due to welfare work. Such work has no place unless it does further production.

The science of personnel relations pleads this justification—that it aids production. It is maintained that the extension of scientific principles to human relations means an impetus to production comparable only to that of the application of power to machinery in the industrial revolution of

²H. L. Gantt, *Organizing for Work*, 1919, p. 5; also in *Engineering Magazine*, Apr. 1916, pp. 1-5. Italics in original.

the eighteenth century. This is the opinion of Arthur H. Young, manager of industrial relations, of the International Harvester Company, who says:³

The present focussing of attention on personnel relations, I think, will result in a new era in industry—as much an epochal change as we have had through various fundamental causes heretofore; such as the change from the original craftsmanship to larger shop organization, made possible by power development, power transmission, changes wrought by methods of communication and refinement of the methods of transportation, the era of consolidation of interests, and so on, and one has to stop and wonder why at last we have come to a consideration of the human factor.

Such increased power of production is vitally essential in the years following the greatest destruction of products and productive power in the history of civilization. When to this destruction is added the increased volume of goods necessitated by the risen standards of life of the people and the awakening of great sections of mankind to the possibilities of a higher civilization, the need of greater production does not require further proof.

Personnel relations in industry will be the determining factor in the future race for national economic supremacy, just as mechanical relations were the deciding factor in the last century. “Inasmuch as production was the controlling factor in the great war,” says H. L. Gantt, “it will hereafter be the controlling factor in the world, and that nation which first recognizes the fundamental fact that production and not money must be the aim of our economic system, will, other things being equal, exert a predominating influence on the

³ A. H. Young, Industrial Personnel Relations, *Mechanical Engineering*, July, 1919, pp. 581-586.

civilization which is to be built up in the period of reconstruction upon which we are now entering." ⁴

Scientific Approach to Industry

Notwithstanding the fact that mechanical progress has come through the application of the principles of such established sciences as chemistry, physics, mathematics, and biology, the tendency still exists on the part of many so-called practical men to look askance at the word "science" and to assume that it deals with materials and methods in ways not effective in ordinary business.⁵ There is a simple, accurate definition of science which, if kept in mind, automatically shows the absurdity of this attitude, namely: Science is tested, standardized, classified knowledge.

It is a simple, but often overlooked, truth that human progress in every field is measured by the degree to which the facts in that field have been made scientific—have been tested, standardized, and classified. Progress is always from chance, guesswork, chaos, magic, common sense, and personal experience, to investigation, standard experiment, order, science, prediction, and power.

New Emphasis
Law of Unequal Advance

In social matters, as Lester F. Ward has pointed out, progress moves like the incoming tide upon a sloping, irregular

⁴ H. L. Gantt, *Organizing for Work*, 1919, p. 56.

⁵ "Many men of affairs are much prejudiced against the invasion of business by science and theory. They conceive of these things as something new and untried, and something opposed to experience. A certain excuse for this view exists in the fact that the scientific method has thus far since its discovery, been applied most prominently to facts which ordinary experience does not furnish, but which are attainable only through the somewhat rigid and refined methods of the laboratory. . . . Only in the delicate scales of science can the complicated conditions of practical affairs be accurately weighed, and the various factors contributing to success or failure be disentangled and appraised."—E. D. Jones, *Business Administration—The Scientific Principles of a New Profession*, 1913, pp. 4, 6.

beach. Here an arm is thrust out far in advance; there an obstacle momentarily stays the advancing waves, only to break and admit a swift and sometimes destructive flood. Always the line as a whole moves onward and upward.

So science is today advancing into industry.⁶ It has proceeded further in some fields than in others, but wherever it has gone the gain has been great.

The emphasis in industrial management must be shifted from materials and machines to men and methods. Hitherto industrial progress has largely depended upon inventions in the field of mechanics. Progress in this direction has outrun the application of scientific methods to human relations.

Availability of Scientific Knowledge

One of the greatest advantages of scientific knowledge is that after it has been tested, classified, and standardized, it can be passed on in time and space. Knowledge based upon the experience of a single individual has not been tested under exact specifications, nor clearly defined and standardized, nor classified in its relation to the great body of related facts, nor can it be handed on to others. It is of little value to anyone except the person who originally experienced it, and of very uneven and generally much exaggerated value to him. But a new fact, when

* "As is commonly the case with a body of data undergoing process of transformation into that condition of definiteness deserving the name of science, the advance does not take place with equal rapidity at all points but is like a skirmish line moving forward over irregular terrain. For practical purposes solely, both because it expedites the systematization of business knowledge in general and particularly because it corresponds to more or less well-defined phases of the organization itself, the data pertaining to management are to be classified under four heads: Production, sales, finance and accounts. So far as these are concerned from the standpoint of scientific procedure, it is probably not far from correct to say that up to the present accounting has attained the most definiteness in its principles, following which comes production, finance and sales in the order named."—E. B. Gowin, *The Selection and Training of the Business Executive*, 1918, p. 123.

tested, standardized, and classified by scientific methods and expressed in the standardized languages of the world, though it may have originated in a South African diamond mine, can be used the same day in China, Japan, Europe, or America, if of sufficient value to justify communication.

Such knowledge can be stored away in files, books, or otherwise, and can be taken out at any time and used by anyone familiar with scientific methods. When so used the results will always be the same, because all the conditions surrounding its use will have been known and stated.

Limitations of Individual Experience

Individual experiences of practical men are of value only when many such experiences are collected and compared. Personal experience is always from a single viewpoint, limited to the capacity of the one person and subject to all the errors and manifold prejudices found in every individual mind. Such information is seldom specific, definite, or accurate. It deals in generalities and ready-made judgments and conclusions rather than facts. In the field of personnel relations we find those who depend upon their own narrow experience talking much of honesty, justice, the square deal, and similar phrases of little definite meaning. Such phrases can never be standardized because they vary with every individual. They are like a tape measure made of elastic; they give whatever result the user wishes. One of the oldest and commonest of these standards is justice. An often quoted definition of "justice" is found in the Roman law and reads as follows: "Justice consists in giving to each person what he deserves." The difficulty is that the dispute is always about what is deserved, and not about the abstract idea of justice.

Accurate observation and valuable conclusions in industrial relations, as elsewhere, are possible only when the scientific methods of exactness and impartiality are used. These have

been the foundation of progress in other departments of human knowledge, and the rule holds true in industry.⁷

Scientific Methods in Industry

Science is the greatest labor-saver. It adds power to all it touches. It builds up an inexhaustible store of tested, classified knowledge, the property of all society, available to anyone on an instant's notice and growing larger the more it is used. This great store of knowledge is the foundation of civilization. Even in industry, despite its present rough and imperfect form, it is the accumulated surplus of facts and principles gathered by all the craftsmen of the past that forms its most valuable asset.⁸ If this industrial knowledge were tested, standardized, and classified, as is the similar fund of knowledge in the scientific storehouses of geology, chemistry, and other sciences, industry would move forward by great leaps as compared with its present progress.

Such a fund of knowledge finally climaxes in rules, principles, standards—so-called scientific laws—summarizing the results of repeated and accurate observations. Through the use of these laws future events can be predicted and chance eliminated. The physicist knows what will happen when two known forces are united upon a certain resistance. The

⁷E. D. Jones, *Business Administration—The Scientific Principles of a New Profession*, 1913, p. 6; H. C. Link, *Employment Psychology*, 1919, pp. 100-101.

⁸"Technological knowledge is of the nature of a common stock, held and carried forward collectively by the community, which is in this relation to be conceived of as a going concern. The state of the industrial arts is a fact of group life, not of individual or private initiative or innovation. In the main the state of the industrial arts is always a heritage out of the past; it is always in process of change, perhaps, but the substantial body of it is the knowledge that has come down from earlier generations. New elements of insight and proficiency are continually being added and worked into this common stock by the experience and initiative of the current generation, but such novel elements are always and everywhere slight and inconsequential in comparison with the body of technology that has been carried over from the past."—Thorstein Veblen, *The Instinct of Workmanship*, 1914, p. 103.

chemist can foretell the result of combining two elements. But the business man still guesses at the results of the investment of capital, the hiring of men, and the buying and operation of machines. Moreover, the history of business failures shows that he generally guesses wrong.

The Superman Rarely Available

Lacking knowledge and accurate methods, successful industrial management depends upon the possibility of discovering "supermen" who can accumulate and assimilate a vast amount of untested, chaotic knowledge and draw approximately accurate conclusions. When once any field of knowledge has been reduced to science, the ordinary man can apply tested standards with much greater certainty of the results than the exceptional man can apply unscientific knowledge. This leaves the exceptional man free to undertake new problems and to do really great work. Science saves such exceptional persons from the tedious and wasteful work of repeating the experiences of the race. It lifts the average person of each generation to the shoulders of geniuses that have preceded him.⁹

Edwin G. Rust, industrial engineer, states this truth as follows:¹⁰

⁹ "In the past the prevailing idea has been well expressed in the saying that 'Captains of industry are born, not made'; and the theory has been that if one could get the right man, methods could be safely left to him. In the future it will be appreciated that our leaders must be trained right as well as born right, and that no great man can (with the old system of personal management) hope to compete with a number of ordinary men who have been properly organized so as efficiently to co-operate. In the past the man has been first; in the future the system must be first. This in no sense, however, implies that great men are not needed. On the contrary the first object of any good system must be that of developing first-class men; and under systematic management the best man rises to the top more certainly and more rapidly than ever before."—F. W. Taylor, *Principles of Scientific Management*, 1911, p. 6.

¹⁰ E. G. Rust, *Centralization vs. Decentralization in Industrial Management*, *Annals of the American Academy*, Sept. 1919, pp. 100-109. 1

It must be remembered that the development of all democratic institutions is away from the domination of and dependence upon the exceptional man. In fact this has been the history of the development of all science. The real purpose and object of science is so to develop and epitomize facts, invention, experience and knowledge as to make them available to the average man. Watt invented the steam engine, but the science of thermodynamics and the steam engine has so developed this art that we are no longer dependent upon exceptional men of the genius of Watt to design and construct the steam engine in the best forms of its development.

I do not mean to state that the science of industrial organization has reached that state where we are independent of the exceptional man. But the tendency will continue in that direction and will more and more approximate to that condition, leaving it to the efforts of men of genius eventually to carry it forward to the forms of its still higher development. Exceptional men are rare and it is folly so to organize a comparatively simple industrial proposition on lines which overtax the capacity of the average man when such procedure is unnecessary in the light of the present advancement in the field of industrial organization.

Science and Financial Control

Science moves into the industrial field by the already mentioned law of unequal advance. Financial control made science necessary first in the field of accounting, but even here the entry was comparatively recent. Accurate cost systems have been in existence but a few years. Price estimates are still largely guesses. Estimators guess at the guess of their competitor and then place their guess a few cents lower, hoping that both have guessed within the profit limit. Yet cost systems of great accuracy are ignored at the risk of bankruptcy, and with what result is shown from a quotation from a recent report of the Federal Trade Commission:

Only ten per cent of our manufacturers know the actual cost of manufacture and sale of their products; fifty per cent have no method, but price their goods arbitrarily. There were 22,000 business failures in the United States last year. The first and greatest need of American manufacturers is for better methods of cost accounting.

Science as an Aid to Purchasing

Science was next used in the judgment of materials. In some departments of this field scientific standards had long been familiar. The bushel, foot, pound, and yard are among the oldest of standardized units. The organized science of the laboratories was slower in invading industry. When, some thirty years ago, a great American firm began to buy its coal by British thermal units instead of by the ton, this application of the scientific method was so novel as to attract wide attention through the press.

Until within the present generation steel was generally bought by its appearance or trade-name. Today the amount of carbon, vanadium, molybdenum, or other alloy or essential element desired, is determined in advance by the metallurgist and set forth in the specifications. There is little need of expert knowledge in the ordering of such standardized materials. Once the standard has been established, the specifications can be duplicated any number of times, in this way insuring uniformity, economy, and accuracy throughout the whole process of manufacture. The use of scientific methods in handling materials led to the establishment of purchasing departments with a standard technique, just as the science of accounting developed the accounting department and expert accountants.

Application of Science to Management

The step from materials to process was a short but extremely important one. When Frederick W. Taylor intro-

duced so-called "scientific management" with accurate time, motion, and fatigue studies, routing of work, functional foremen, planning departments, and standard practice instructions, he set in motion a revolution in industrial management whose results are just beginning to appear. Similar methods were adapted to office work, and desks as well as machines were arranged for routing work. Typewriting, filing, indexing, and bookkeeping, when subjected to the same careful study, revealed the same wastes and the same possibilities of increased efficiency.¹¹

Because scientific management came into industry through the engineering department, it inevitably suffered in the beginning from neglect and misunderstanding of the human element.¹² Much greater difficulties arose because the principles set forth by Taylor were not carried out by many of his ostensible followers. They lacked his technique, his broad, scientific vision, and were too anxious to produce immediately profitable results for themselves and their clients.

Application of Science to Personnel Relations

Before science could be effectively applied to such a stupendous new field as that of industrial management, much was needed in addition to the knowledge of the important fundamental principles set forth by Taylor. To apply those principles properly, a highly developed technique had first to

¹¹ W. H. Leffingwell, *Scientific Office Management*, 1917, pp. 13-72, 203-210 *et passim*.

¹² "It is no secret that Dr. Taylor was not himself very much of a manager. Persistence and genius he had without end. But he was not an adept at judging men, nor tactful or conciliatory in his method of approach. Even for his friends he was a hard taskmaster, and his entrance into a new plant would stir things up from the bottom. He insisted, too, that reorganization be thoroughgoing and complete, according to what often seemed preconceived notions."—H. B. Drury, *Scientific Management and Progress*, *Bulletin of Taylor Society*, Nov. 1916, p. 4. See also R. F. Hoxie, *Scientific Management and Labor*, 1915, p. 120 *et seq.*

be acquired and a large body of scientists trained.¹³ These requisites are now being gradually supplied. Unfortunately, before they were ready the hostility of the employees was aroused and for a time threatened to block further progress. This hostility, given greater power by the scarcity of workers during the war, forced the application of scientific methods to personnel relations.

The Field of Personnel Relations

Here the field was practically untouched. Nowhere in modern life was less use made of science. It is necessary to build almost from the bottom, but fortunately much material lies ready to hand. The steps along which the advance will be made are set forth in the following paragraphs which, in so doing, outline the subject matter of the succeeding chapters.

Standards must be established for every element. A job survey of plant and neighborhood, followed by a more minute job analysis, is the basis of the standardization of jobs, the first element in personnel relations.

The Human Element. This is standardized partly through a study of the laws governing human instincts as the motives of much of human behavior. Abilities and trade habits are measured by standardized tests which give accurate knowledge of the possibilities of personnel. With jobs and capacities known, the ground is laid for the erection of a scientific personnel system. The general outline of such a system and

¹³ "A scientist is one who can formulate and apply *standardized* knowledge in a given field. And the scientific method is a method by which knowledge is standardized and refined far beyond the ordinary powers of the human mind. In every case science consists of the application of an exact and refined method to the study of facts, with the result that we have knowledge which has two chief characteristics: first, it is relatively free from the inaccuracies of unaided human faculties; second, it is standard knowledge, that is, knowledge which can be transmitted in unambiguous and indisputable form from one person to another, or from one time to another."—H. C. Link, *Employment Psychology*, 1919, p. 11.

its method of growth may be suggested by contrasting the treatment of the different elements, problems, and relations by the old and the new systems of personnel relations.

The Labor Supply. Under the old, unsystematic, guessing, planless system, the labor supply was the crowd of unemployed that gathered at the gate or responded to miscellaneous advertising. Scientific management organizes the supply far in advance, seeks it out by systematic methods, classifies it, and retains the list as a reserve. It considers such a classified source of supply fully as necessary to effective functioning of industry as a corresponding financial reserve of securities or credit.

Selection of Employees. Selection, instead of being based upon a glance of the foreman's eye, a few hasty unstandardized questions, and a superficial method of judging human nature, has developed into a scientific system of adjusting the available workers to the most suitable positions through the use of standardized application blanks, references, records, and interviews, all used to fill standard job specifications. The worker's competence to satisfy such specifications is not determined by guessing, but by physical, mental, and trade tests, which are constantly growing in value and accuracy.

Introducing Employees. The common method of assignment and introduction under the old system was to say: "Go down to shop 10 and tell Bill Jones, the foreman, to put you to work." A standard and tested plan of introducing and adjusting the new worker removes the feeling of hostility and strangeness, shortens the time of learning, and reduces wasteful labor turnover.

Training. The planless system that succeeded apprenticeship expected the new employee to pick up, or steal, his trade. Scientific investigation proved this to be the most expensive method yet discovered to educate workers, and established instead carefully planned training systems.

Promotion. Promotion formerly rested on chance, favoritism, and nepotism. The vacant jobs were given to those belonging to the same race, lodge, church, or clique as the foreman. Standard rating scales, measurement of work, and planned promotion systems give increased incentive, greater production, and more harmonious organization.

Personnel Records. These records were once confined almost entirely to the pay-roll. Other facts, if noted at all, were kept in the memory of the employer. Modern industry notes every fact worth preserving in standardized and classified records. To this infallible mechanical memory reference is made for data upon which to base changes in personnel relations. These records include production possibilities and promotion desires, turnover rate, and all other facts that contribute to better human association and increased production.

Discipline. Discipline was enforced, formerly, by a husky foreman with an extensive and vigorous vocabulary acquired from experience under a similar foreman in his journeyman days. Proper discipline now rests upon well-established shop standards, pedagogical principles, and accurate records, set up with the co-operation of the entire force and impartially administered by bodies jointly chosen for that purpose.

Production Standards. The production standard of the guessing system of industry was what could be gotten out of the worker. Employee and management played a game, the former to do as little, the latter to compel as much work as possible. In many instances more energy was consumed in conflict than upon production. In a scientifically managed factory, production standards rest upon time, motion, and fatigue studies conducted under joint management.

Wages and Hours. Wages and hours may be determined by fighting strength. A better way is to use scientific standards of living to determine the minimum, and joint management of production and organization to fix the maximum con-

sistent with industrial growth and prosperity. The latter method involves local and national studies of prices and budgets and the application of efficiency methods to production.

Economy of Time and Effort

Science seeks everywhere to substitute intelligent artificial selection for compulsory natural selection. Nature, in the words of the geologist and biologist, who have so long studied her, "has all the time and all the material there are." Nature can afford to use a million years and countless billions of organisms to produce one minute gain. The unscientific manager acts as if he were as prodigally endowed with resources as Nature. He tries all methods, trusting to his own experience to know when he finds the right one concealed in an infinity of wrong ways.

The stored-up facts and proved principles of science make it possible to predict right ways without experiment. That is the task the establishment of scientific personnel relations in industry is getting ready to do. Although still in process of formation, with much yet to be learned, there is much scientific material ready for use. Additions to this store of knowledge are being steadily made by establishing standards, developing technique, classifying and testing facts, and proving principles.

Contributions of the Older Sciences

The birth of every new science is attended by a scene much like that described in a familiar fairy tale. The good fairies each brought a gift to the christening of the princess. Around the cradle of this new science stand the older sciences with their splendid gifts.

Political Economy brings her knowledge of the laws of wages, prices, and values, of statistical methods and the growth and development of industry, of the laws that under-

lie exchange, trade, and the organization of the forces of industry. Psychology brings her store of knowledge of the workings of the human mind, her most recent and proudest achievement—the methods of testing abilities and habits, and new discoveries concerning the laws that govern human behavior. Sociology contributes her priceless store of facts concerning the growth of institutions and the forces that govern their movements. Large contributions are donated by the near relatives of the newly born science—accounting, and scientific factory and office management. All this rich store of raw material must be worked over, tested by new norms, standardized to meet new tasks, and assimilated with much new material before there will be a really worth-while science of personnel relations.

CHAPTER II

STANDARDIZATION OF EMPLOYMENT ELEMENTS—THE JOB

Standards and Civilization

In a very great degree civilization reflects a process of standardization. Each achievement must be standardized before it can be effectively utilized in the life and institutions of society. Indeed, institutions are but standardized ways of doing things. Intelligent communication became possible only after speech had become standardized. This established a common agreement as to the words to be used in naming things, describing actions, grading qualities, and expressing ideas. A standard alphabet gave birth to the art of writing. Centuries later printing standardized methods of recording and transmitting thought.¹

Definition of "Standards"

Frank B. Gilbreth considers that for industrial purposes Morris L. Cooke, director of the Philadelphia Department of

¹ "The forward march of civilization has only been rendered possible by the adoption of standards. Standards passed on from father to son and from generation to generation represent ratchets on the wheels of progress, and have enabled each forward step painfully and slowly made, to be maintained. Without the privilege of drawing on the accumulated experience of the race as represented by its standards, each individual would be compelled to start in right at the beginning and progress would have been impossible.

"Whereas the savage had very few and simple standards, as civilization developed standards increased in tremendous degree both as regards number and complexity, and in modern life the standards covering the multitudinous activities of human kind are of incalculable number."—G. C. Harrison, Cost Accounting to Aid Production, *Industrial Management*, Nov. 1918.

Public Works, has standardized the word "standard" in the following definition and explanation:²

A standard under modern scientific management is simply a carefully thought-out method of performing a function, or carefully drawn specifications covering an implement or some article of stores or product. The idea of perfection is not involved in standardization. The standard method of doing anything is simply the best method that can be devised at the time the standard is drawn. Standard specifications for materials simply cover all the points of possible variation which it is possible to cover at the time the specifications are drawn. Improvements in standards are wanted and adopted whenever and wherever they are found. There is absolutely nothing in standardization to preclude innovation. But to protect standards from changes which are not in the direction of improvement, certain safeguards are erected. These safeguards protect standards from change for the sake of change. All that is demanded under modern scientific management is that a proposed change in a standard must be scrutinized as carefully as the standard was scrutinized prior to its adoption, and further that this work be done by experts as competent to do it as were those who originally framed the standard. Standards adopted and protected in this way produce the best that is known at any one time. Standardization practiced in this way is a constant invitation to experimentation and improvement.

Standards are the greatest labor-savers. They crystallize the work of the great minds of all ages. They enable the user, by speaking a name or following a set of instructions, to utilize all the brains involved in the original creation of the standards. They make the transcendent accomplishments of great geniuses the common tools of the ordinary persons who follow them.

² Bulletin No. 5, Carnegie Foundation for the Advancement of Teaching.

Applying Standards in Manufacture

A classic illustration of these truths is found in the establishment of standard methods of cutting steel by Frederick W. Taylor, Carl G. Barth, and their associates. These were exceptional men, pioneers in the field of industry. They worked upon their experiments for twenty-six years. "In studying these laws," writes Taylor, "we have cut up into chips with our experimental tools more than 800,000 pounds of steel and iron. More than 16,000 experiments were recorded in the Bethlehem Steel Co."³

Until these experiments began there was almost no exact knowledge of the best methods of cutting metals, and yet this process is fundamental to much of modern industry. Analysis of the problem showed at least twelve variables. These included the quality of the metal, the diameter of the work, the depth of the cut, and the thickness of the shaving. Such a problem had been deemed insoluble. Says Taylor:

Several times during the progress of this mathematical work, the writer, feeling himself completely baffled, has asked the expert assistance of some of the best mathematicians in the country. They all smiled when told that we expected to solve mathematically a problem containing *twelve variables*, and in each case, after keeping the formulæ before them for a longer or shorter time, returned the problem to the writer with a statement that it belonged distinctly in the realm of "rule of thumb" or empiricism, and could be solved only by the slow method of trial and error.

Two important requisites for the development of standards are here illustrated: First, that mathematical formulas must be devised for special tasks. In the case under consid-

³F. W. Taylor, on the Art of Cutting Metals, Address before the American Society of Mechanical Engineers, Dec. 1906. See also, F. W. Taylor, Principles of Scientific Management, Bulletin of Taylor Society, Dec. 1916.

eration, one field of science was held back momentarily by the backwardness of an older and, in most ways, much more highly standardized science. Second, that standardization constantly moves into more and more complex fields, always crowding back the unstandardized and wasteful method of trial and error.

It is commonly reported that Barth invented and standardized new mathematical formulas in order to solve the equations resulting from these complex experiments. When this colossal work was done, its elements and processes were standardized. The staggering mathematical calculations were embodied in standard formulas by means of which any ordinary mathematician can, with a slide-rule, solve over again in a few seconds the same problems whose investigation and solution required the labor of these two geniuses for a generation.

The Elements of Personnel Relations

The science of personnel relations is entering a field hitherto ruled almost exclusively by the method of "trial and error." It will justify its right to the name of science by its ability to standardize the elements it meets.

The fundamental elements in personnel relations are two: the job, and the worker. While these remain unstandardized there can be no certain knowledge or action concerning their relations. Immediate progress in personnel relations will be largely measured by success in standardizing these two fundamental elements.

Analysis of the job and of human nature is the first step; analysis must precede standardization. A committee of the National Association of Corporation Schools gives this definition of job analysis: ⁴

⁴ Report 7th Annual Conference, National Association Corporation Schools, p. 369.

Job analysis . . . is the analysis of the component parts of each particular kind of work, in relation to the worker responsible for its performance. A "Man-Job-Specification" is the result of job analysis. It is made up of two parts, one describing the qualifications of the individual who may be expected to do the work, the other the essential features of the job.

The first scientific examination of a new field generally reveals chaos. Names, duties, responsibilities, and all qualifications for jobs varied in different states, cities, and even as between department and department within the same organization. Until there were standards that told exactly what was to be done in each job, there could be no intelligent selection of employees.

The strain of war revealed the alarming nature of this industrial weakness. When accurate classification of men for work became a matter of national life and death, there was a hasty scrambling together of classification standards. No one knew what even a carpenter is expected to do. In some places he was still a man who could make and fit window sashes and even "rive out shakes" for roofs that knew not shingles, to say nothing of more modern roofings. In others these were lost arts, speaking an unknown tongue, and a carpenter needed to know only how to fit mill-work. Confusion in trades of less ancient lineage was even greater.

The United States Employment Service prepared and published lists of standard names and short descriptions of many trades. These will doubtless form the nucleus of a more accurate standardization. The army, by methods to be described later, established some standards of trade ability.

Job Survey

This process of analysis and standardization must go on in each plant. The foundation of any sort of employment work

should be a job survey. Such a survey is not necessarily something to be done all at once by a group of experts walking through the factory and quizzing each worker. The services of experts may well be necessary in preparing schedules and outlining the work. These bring an outside view of great value. But the work should only begin with such a survey. The result will be better, the information more accurate, and the general education of the force far greater if the survey and succeeding job analysis are made gradually and as part of the regular work of an established employment department.

There should, however, be a well-worked-out plan of all personnel features, based upon a labor audit. In order to visualize the plan, the work to be done for a considerable time should be plotted.⁵ There should be a constant flow of information to the cards containing the job specifications. Interviewers, foremen, plant physicians, complaint department, all who have any relations to a job should be continuously on the watch for such additional information. If the employment office tests, standardizes, and classifies all such information, and systematically seeks to fill in all gaps, its job survey cards will become the foundation of all employment relations.

Job Analysis

Each job should, as soon as possible, be subjected to a careful analysis, according to standardized specifications, especially prepared to fit the industry concerned. A complete and typical job analysis, according to Sumner H. Slichter, should cover the following points:⁶

⁵ The Labor Audit, Federal Board for Vocational Education, Bulletin No. 43, gives full instructions for making a labor audit.

⁶ S. H. Slichter, *The Turnover of Factory Labor*, pp. 284-289. See also, *Outline of Job Analysis*, by E. G. Gould, *Iron Age*, Apr. 1918, p. 874, for outline used by War Industries Board.

1. Nature of the job:-

- (a) Precise nature of the operation.
- (b) Pay for beginners.
- (c) Period elapsing before advances are given and the amount of advances if a regular schedule for advances exists.
- (d) The amount an average good man can earn on the job.
- (e) Time required by an average good man to attain normal output.
- (f) Opportunities for promotion; names of the specific operations for which the operative is in line for promotion, and their rates of pay.
- (g) Any particularly unattractive features about the job, such as great physical or nervous strain, heat, dirt, dust, steam, wetness, nauseating odors, monotony, etc.

2. Characteristics desired of the workman:

- (a) Occupations within the plant from which workers are to be drawn in preference to hiring outsiders.
- (b) Specific physical characteristics required of the worker such as great strength, good eyesight, dexterity, agility.
- (c) In the case of some jobs physical defects which in general disqualify applicants will not be a bar. These exceptions to general rules concerning physical defects are specified.
- (d) Special knowledge, skill, experience or training necessary or desirable. Names of occupations experience in which specially qualifies men for the job.
- (e) Mental characteristics required of the worker, such as general degree of intelligence necessary, whether high, moderate or low, and special mental characteristics such as good memory, an eye for details, quick reaction, etc.
- (f) Requirements relating to applicant's personality and character, such as ability to meet the public; in the case of workers who work with helpers,

tact and ability to get on with others; in the case of positions involving considerable responsibility, even though perhaps not great intelligence or skill, a sense of responsibility.

(g) Age limits, if any.

As time passes and the systematic development of employment methods progresses in the plant, the job analysis tends to grow more and more minute. Early in this process a set of questions covering the points mentioned above, and such others as are found necessary and peculiar to each plant or department, should be prepared. These should be furnished to the superintendents and foremen, with an explanation of their purpose and value. On these will ultimately be based the work of promotion, of trade tests, and nearly all the other work of the personnel department. When the job analysis is sufficiently complete it will form a guide to the instruction of the new worker, and ultimately the foundation of trade education.

Points Covered by Job Analysis

A job analysis is not a character analysis of the desired applicant. When asked what kind of person is desired to fill a certain position, the employer has usually given a list of qualities, such as intelligent, patient, careful, loyal, sincere, responsible, etc.⁷ This is no analysis at all. It is only another

⁷ "Anybody can make a hasty tour of inspection, gather a superficial knowledge of a number of jobs, and then describe them in such comprehensive terms as those just enumerated. . . . These qualities are so general and vague that they mean very little when tied up with a particular job."—H. C. Link, *Employment Psychology*, 1919, p. 256 *et seq.*

"It is clear at once that this method yields little information of the kind we are considering beyond the cataloging of the general virtues of mankind. . . . The so-called special qualifications, such as honesty, patience, attention, neatness, perseverance, etc., do not represent elementary psychological categories. Moreover, they are qualifications with which no legitimate sphere of human activity can afford to dispense. In the long run they are characteristics which correlate to a high degree or, indeed, perhaps help to make up and constitute what we call general intelligence.

example of that substitution of generalities for specific research and careful testing of facts which has long characterized the conceit that passes for ability in the field of management. These qualities are distinctive of no job and probably of no individual. All jobs require them; all persons possess them in greater or less degree. They are qualities that change with surroundings in the person and are in no way descriptive of the job. A job analysis must be specific. It must tell the processes which constitute the job in terms that can describe no other job. It must describe the tools, methods, and technique required so that it is possible for anyone possessing the standardized description to use it as a test for the selection of a proper person to fill the job.⁸

Value of a Job Analysis

A job analysis is of value in relation to almost every phase of employment work.⁹ The worker is the first one

In no case is there any specification of the precise amount of these various traits that may be needed. Since the days of the faculty psychology we have ceased to think of memory, will, etc., as homogeneous powers which play in a general sort of way on all sorts of material. We usually find that when an individual is inattentive to one set of facts this is largely due to his being attentively occupied with some other set. Still further, no tests have been proposed which satisfactorily measure such traits as honesty, perseverance, promptness. Nor is it certainly known to what degree such traits are fixed characteristics of individuals and to what degree they represent habits and tendencies modifiable in many ways if the circumstances call for such change."—H. L. Hollingworth, *Vocational Psychology*, 1916, pp. 99, 100.

⁸ "Different jobs have very specific and characteristic differences and it is impossible to describe them except in terms of qualities that are equally specific and concrete. It is quite apparent that the personal qualities of a worker also are not general and abstract, but are particular and very closely tied up with the specific characteristics of a particular job."—H. C. Link, *Employment Psychology*, 1919, p. 257.

⁹ M. R. Lott, Superintendent of Personnel Department, Sperry Gyroscope Company, *Standardizing the Job*, *Factory*, Dec. 1919, and Jan. and Feb. 1920.

H. A. Kopf, Report on Job Analysis to 7th Annual Conference National Association of Corporation Schools, June 1919. The outline suggested by these two articles is followed quite closely in the text. See also M. T. Copeland, *Business Statistics*, 1917, p. 7.

benefited. If the work has been properly done, he is assured of being placed in a position suited to his abilities as a craftsman, his physical strength, and his temperamental characteristics. The future possibilities of promotion can be made visible to him, as the requirements for all higher positions are clearly defined and in available form for consultation at any time. Only with such a job analysis can a definite plan of promotion be worked out and applied. It is the basis of the standardization of wages for identical work, the lack of which is a prolific source of dissatisfaction and turnover. Without a job analysis it is not infrequent to find the same work being paid for at very different rates, not only in the same locality, but even in the same plant.

The firm finds a job analysis the foundation of any real, efficient organization of the human forces in production. The very name "organization" presupposes a standardized relation of elements. The job is perhaps the most important of such elements. Unless the job is standardized through analysis, there is only a chance meeting of elements. Only when a worker is properly placed can he efficiently function in production. Only by a thorough job analysis is the establishment of standards of payment and promotion made possible, and such standards are now recognized as essential to industrial efficiency. Modern cost accounting rests in part at least upon such a pay-roll analysis as must be preceded by a fundamental job analysis. All these things that work together for better adjustment make for a lower turnover and a consequent reduction of costs of production.

Influence on Employment or Personnel Work

The employment or personnel department of any organization must build its work upon a job analysis. Such a department cannot be really organized without such an analysis. The character of its functioning and its value to the industry

will be largely determined by the thoroughness of the job analysis upon which it rests. Without such an analysis, selection is blind chance; interviewing is a fishing for unknown facts and placing a lottery with very few prizes. Job analysis establishes a permanent record of the different types of work; gives the interviewer reliable data upon which to base his questioning; indicates occupational hazards, conditions, and rewards; and furnishes the information necessary for the grading of jobs for promotion as well as the first placing of employees. It makes possible the utilization of the physically handicapped by keeping before the employment manager the lists of jobs where such persons can be used. It indicates where and what training is necessary. It makes possible an analysis of turnover by jobs, without which turnover figures are meaningless and the search for remedies almost useless.

A job analysis reduces friction between the foreman and the employment office by making possible exact specifications for employees. Friction in human relations as well as in mechanical ones is most frequently due to lack of standardization in the meshing gears, which causes them to bind and grind instead of smoothly transferring power from one to the other. A job analysis promotes the study of the job, and discovers defects. It defines the factors upon which output depends and points the way to increased production.

Job Specification

A job specification is the result of a job analysis. Such a specification made by the foreman, using a key-word or number, gives instantly a complete description of the qualifications required. The specification can be written in a moment, when the emergency arises, by anyone. It utilizes the accumulated knowledge of months, perhaps years, of recorded investigation concerning the job, and places that knowledge at the service of the person who must find the worker.

A novel blank to be used with a job specification, an application blank, or interviewer's record, has been suggested by E. H. Bickley.¹⁰ This blank is not intended to take the place of these other records, but may be placed at the head of any form of foreman's requisition or employment office record, as a means of summarizing and symbolizing the most important information. The scheme involves two parallel columns as follows:

Very good eyes.....1X#	Good eyes.....1
Good fingers.....2X	Good writing.....2#
Strong build.....3X	Medium build.....3#
Good at figuring.....4X	Read and write.....4#
Right handed.....5X	Married5
Work pedals.....6X	Good walker.....6
Good hearing.....7X#	Energetic7
For special trust.....8X	Honest8
Very skilled.....9X	Some experience.....9
Pleasant manner.....0X	Tactful0#

The characteristics most desirable are placed in the first column, and those possessed by the applicant or desired by the foreman are checked. The qualifications in the second column are considered of less value to the particular firm for which the record is prepared. In most cases they are a less degree of the qualities expressed in the first column. When the blank has been checked, as shown, the result can be expressed in the key number 17.2340, the most valuable qualities being placed to the left of the decimal point. The card can be filed by this number; and when a requisition is received, a search of the application blanks and records of possible employees tells at once if anyone with the required qualifications is available.

Job Standardization on National Scale

A thorough job analysis would prove of great help to any industry. Several national and local associations of in-

¹⁰ E. H. Bickley, *Records that Match the Man to the Job*, *Factory*, July, 1918, pp. 28-30.

dustries are already preparing to make such an analysis, without which it is now recognized there can be no common language in which to discuss problems. Only when terms and conditions are standardized will intelligent comparison and consideration of difficulties be possible. A national job survey and analysis would be the first step to the standardization of wages throughout a trade. This would minimize the labor turnover due to purposeless and profitless drifting in search of differences in work and wages which either do not exist or must tend to disappear when duties and requirements of the various jobs are made more uniform.

Suggestions have already been made by engineers and others in a position to speak for large sections of industry that, since the first step toward job standardization on a national scale was taken by the government, the process should be continued under government auspices, with the co-operation of trade associations.¹¹ These agencies should undertake the work of selecting standard trade-names, then indexing, cross-indexing, and segregating these into groups of allied trades. This would also include defining and recording the standard requirements of the trades, and classifying the standards of skill. Then a skilled worker in any trade would mean exactly the same thing in all places. It will be found that important steps leading in this direction were made possible by the development of trade tests in the army, and their application to industry. This matter is dealt with in a later chapter.¹²

Frank B. Gilbreth has developed another phase of the same idea in urging that motion study of the various trades be standardized, so that the operations required for the best standard practice may be recorded and classified for use in

¹¹ M. R. Lott, *Standardizing the Job*, *Factory*, Dec. 1919; F. B. Gilbreth, *Applied Motion Study*, 1917, pp. 1, 53-56.

¹² See p. 100.

industry and education. He believes that: "It is the work of the United States Government to establish such a Bureau of Standardization of the Mechanical Trades. The standards there derived and collected would be public property, and original investigators could invent from these standards upwards. Most important of all, perhaps, these standards would furnish the ideal means for teaching or transferring skill to the young workers who desire to enter a trade."¹⁸

¹⁸ F. B. Gilbreth, *Applied Motion Study*, 1917, p. 56; C. R. Richards, Director of Cooper Union, *What We Know about Occupations*, in Bloomfield's *Readings in Vocational Guidance*, 1915, pp. 504-514, gives elaborate job analyses of several occupations from the point of view of vocational guidance and urges that such work should be a public function. See also J. M. Brewer, *The Vocational Guidance Movement*, 1918, pp. 130-137.

CHAPTER III

STANDARDIZING THE ELEMENTS—HUMAN NATURE

Two Phases of the Personnel Problem

A job is a position for a human being. It functions only when it secures the services of some person. The fundamental personnel relation is that of the person to the job. The establishment of this relation includes the work of adjustment, promotion, placing, selection, training. It rests upon a mutual standardization of work and worker.

Modern industry is an infinite complex of persons and positions. Not only must individuals be adjusted to jobs but great bodies of workers must be adjusted to one another. This relation of persons to each other is the second phase of personnel relations. It deals with questions of wages and hours, shop conditions, collective bargaining, welfare work, joint management, employee good-will, systems of promotion and discipline, and all the subjects most commonly discussed under the name of "the labor problem."

The two phases are not entirely distinct. The one thing which they have in common is the human element—the dominant element in industrial management. The way in which men are fitted to jobs will have much to do with the absence of friction in other lines. Industry exists for persons as well as by means of persons. The problem of human relations in industry is largely a problem of psychology.

Psychology Applied to Industrial Relations

The recognition of the intimate dependence of industry

upon psychology is very recent.¹ Hitherto we have talked of the need of good judges of human nature, of recognizing the human elements, and similar almost meaningless generalities. We have not as yet attempted to analyze these phrases into their elements, or to give them any definite, standard meaning.

One of the reasons for this neglect is undoubtedly to be found in the fact that psychology, from which alone such an analysis can be expected, has itself entered into this field only within comparatively recent years. The gift which the good fairy Psychology brought to the christening of the science of personnel relations was perhaps the most valuable of all the gifts received, but it was not complete. The science of industrial relations was born before Psychology had had time to put the finishing touches to her gift.²

The study of human behavior through analysis of instincts and habits, and the examination of the mind by experimental methods—the two phases of psychology of which personnel relations has the greatest need—are both new factors of investigation. Neither field has been cultivated for much more than a generation, and the real harvesting has been done within the last decade, or even later.

Of the developments in the field of experimental psychology, and its investigations in the testing of mental and trade capacities we shall have much to say later. This work promises to make possible a standardization of the human element in direct relation to the job. But the second

¹ "The whole whirl of the economic world is ultimately controlled by the purpose of satisfying certain physical desires. . . . The task of psychotechnics is accordingly to determine by exact psychological experiments how this mental effect, the satisfaction of economic desires, can be secured in the quickest, in the easiest, in the safest, in the most enduring, and in the most satisfactory way."—H. Münsterberg, "Psychology and Industrial Efficiency," 1913, p. 244.

² H. L. Hollingworth and A. T. Poffenberger, *Applied Psychology*, 1917, pp. 10-16.

phase of our subject, the direct relation of human beings to each other, is one which must be dealt with at this point. Here we must draw our material from a new field which is yielding a rich, but as yet only partially gleaned and sifted harvest—the field of “behavioristic psychology.” Only within very recent times have economists, sociologists and all who deal with the great field of human nature and its relations stopped to ask, What is “human nature” and why does it behave as it does?

The Elements of Human Nature

If we are to deal with human relations on a wide scale, with those things that influence the behavior of human beings in masses, we must manifestly begin with an analysis of that which is really common and fundamental in human nature. What do we mean by these words? What do we mean when we say that an “understanding of human nature” is so greatly needed in industry?

It is this question that the new school of psychologists, aided by anthropologists, sociologists, educators, economists, political scientists, and all other scientists whose material for investigation is composed of human actions, reactions, and relations, are trying to solve.

It is manifest that the qualities that make up human nature must be sought in the most primitive elements of the human mind. E. L. Thorndike describes these elements for which we are seeking as follows:³

The original nature of man is roughly what is common to all men minus all adaptations to tools, houses, clothes, furniture, words, beliefs, religions, laws, science, the arts, and to whatever in other men's behavior is due to adaptations to them. From human nature as we find it, take

³E. L. Thorndike, *The Original Nature of Man*, 1914, Vol. I, p. 198.

away first, all that is in the European but not in the Chinaman, all that is in the Fiji Islander but not in the Esquimaux, all that is local or temporary. Then take away also the effects of all products of human art. What is left of human intellect and character is largely original—not wholly, for all these elements of knowledge which we call ideas and judgments must be subtracted from his responses. Man originally possesses only capacities which, after a given amount of education, will produce ideas and judgments.

The Instincts

By far the most important elements in this original nature of man are the instincts. These run far back below any historical period for their origin. They have been fairly constant under all civilizations. Most of them find their origin in those distant prehuman ages with which the geologist and the biologist are concerned, and are shared with many living creatures. Civilization, as we shall see further, consists largely in bending these instincts to social purposes, and their resistance to change constitutes one of the reasons for the slowness of progress. Even more of that slowness and the difficulties that accompany it, however, may perhaps be traced to ignorance of the existence and method of operation of these instincts.

Instincts are the basic things in human make-up. "Take away these instinctive dispositions with their powerful impulses," says McDougal, "and the organism would become incapable of activity of any kind; it would lie inert and motionless like a wonderful clockwork whose mainspring had been removed or a steam-engine whose fires had been drawn. These impulses are the mental forces that maintain and shape all the life of individuals and societies, and in them we are confronted with the central mystery of life and mind and will."⁴

⁴ William McDougal, *Social Psychology*, 1917, p. 44.

The Origin of Instincts

Some biologists would find the origin of instincts in certain essential properties of living matter. These properties are found wherever such matter exists and consist of tendencies called "tropisms," according to which such living matter is attracted or repulsed by light, heat, gravitation, electricity, presence or absence of other objects, and so forth. Such movements are so closely analogous to those which affect inanimate matter—chemical affinity, gravitation, photo-chemistry, etc.—that, whatever we may think of the ultimate and daring conclusions of this school of biologists, we must agree that in tracing even a similarity in instincts back to chemical and physical reactions they have shown these instincts to lie at the very foundation of human actions.⁵

Functions and Laws of Operation

Fortunately the use of this knowledge in personnel relations is not greatly affected by the outcome of the disputes over the exact definitions of instincts.⁶ The things agreed upon are sufficient for our purposes. The same is true of the divergent classifications of instincts; almost any of them will do.⁷ Nor are we greatly concerned over the distinctions be-

⁵ Jacques Loeb, *Physiology of the Brain*, 1900, especially Chap. I.

⁶ For definitions and discussions of distinctions see: William McDougal, *Social Psychology*, 1917, pp. 23, 24, 29; Jacques Loeb, *Physiology of the Brain*, 1900, pp. 6-8; Ordway Tead, *Instincts in Industry*, 1918, p. 5; Maurice Parmelee, *Science of Human Behavior*, 1913, p. 226; E. L. Thorndike, *Original Nature of Man*, 1914, pp. 1-5; William Wundt, *Lectures on Human and Animal Psychology*, 1901, p. 395; William James, *Psychology*, 1902, Vol. II, Chap. 24; J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, pp. 194, 231 *et passim*; W. B. Pillsbury, *The Psychology of Nationality and Internationalism*, 1919, p. 25.

⁷ "So far as the functioning and value of these attitudes to the organism, so far as the rôle they play in daily life, so far as their backward and forward reference in the life history of the individual are concerned, it makes not a whit's difference what factors these capacities are analyzable into."—J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, p. 261. For classifications see authorities previously cited, and Irving Fisher, *Humanizing Industry*, *Annals of the American Academy*,

tween reflexes, instincts, habits, and even emotions, about which psychologists disagree. The disagreement is principally about their origin. There is quite general agreement as to their functions, activities, and laws of operation. These are the phases that bring help in solving the problems of industry.

There is the instinct of gregariousness, or the group instinct. This drives or draws people together in tribes, mobs, armies, clubs, churches, cities, nations, and every other form of social group. It is one expression of that "consciousness of kind" upon which Franklin H. Giddings based his system of sociology.⁸ It is responsible for many group actions, and combined with imitation, to which it is closely allied, produces fashions, fads, conventions, and similar forms of group ideas. In modern industry this instinct becomes of great importance in determining human relations.

Other instincts commonly considered as sufficiently differentiated to require separate treatment are sex, fear, home-making, migration, revolt against confinement, leadership, subordination, display, and, for our purposes perhaps most important of all, the instinct known by such various names as manipulation, creativeness, constructiveness, or craftsmanship. Most psychologists consider this a composite of various instincts and habits, but all agree that in human beings of the present day it usually acts as a unit and obeys the laws that govern instincts.⁹

Slowness of Change in Instincts

Fundamental as these instincts are, they are subject to change. It is by changing them and building institutions

Mar. 1919, pp. 83-90; Carleton Parker, *Motives in Economic Life*, *American Economic Review*, Vol. VII, pp. 212-231, reprinted in his *Casual Laborer and Other Essays*.

⁸ Franklin H. Giddings, *Principles of Sociology*, 1896, Vol. II, Chap. I.

⁹ J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, p. 260.

to utilize their energy that civilization grows. Around the crude, unrestrained, animal instinct of sex, civilization has built the family; around that of the group, the mass of institutions already named. In so doing the instincts have themselves been changed. "The original nature of man contains within itself a principle of change, and the circumstances of the life led by modern man metamorphose almost every original tendency into habits which are much unlike it—even directly contrary to it."¹⁰

It is no reason for the rejection of any policy that it is contrary to human nature. Most of the gains of civilization came through such changes. Popular speech expresses this idea by saying that moral growth depends upon the suppression of the "old Adam," or by triumphing over original sin, or controlling the carnal nature.

While the civilizing process involves continuous change of human nature, this should not blind us to the fact that such changes are exceedingly slow and accompanied with dangers to stability and outcome. The new institutions are also subject to lapses when the veneer of civilization falls off and stark human instincts gain expression. Nor are the instincts to be looked upon as something evil to be overcome. They are of greatest value. "Instincts to their modern possessor," says Carleton H. Parker, "seem unreasoning and unrational, and often embarrassing. To the race, however, they are an efficient and tried guide to conduct, for they are the result of endless experiments of how to fight, to grow, to procreate, under the ruthless valuing mechanism of the competition for survival. In fact, outside of some relatively unimportant bodily attributes, the instincts are all that our species in its long evolution has considered worth saving. . . . Within the past ten thousand years nothing in our brilliant experiment

¹⁰ E. L. Thorndike, *Original Nature of Man*, 1914, Vol. I, p. 143.

with the environment called civilization has been long enough adhered to to bring about a psychological adjustment capable of physical inheritance, and so the basic motives of the business man today remain those of his cave ancestors.”¹¹

Influence of Method of Change

It is the method of change that is of greatest importance in social, and particularly in industrial, relations. One reason for the divergent classifications of instincts seems to be found in the probability that they are all divisions of one primal expression of energy. One school of psychologists—the psycho-analysts—have designated the driving force that finds expression through instinct as the “libido.” In describing what is meant by this term one of the leading representatives of this school says:¹²

It is essentially vital impulse, dynamic in character; it is source as well as stream. In the course of life there is determination of libido to any point of need. It is available for any purpose of growth and development and repair. It can penetrate every recess of man’s being. It can be in the conscious or unconscious. Like physical energy it is incapable of becoming more or less, hence the question of its application and availability is of utmost importance.

One may think of libido in terms of man-power. An attack is going on at the western front, it is to that front the man-power is sent, representing the available libido. More and more may be required, and so long as more is available the front is held, but not without weakening and

¹¹ “Transitoriness is a fact; instincts do wax and wane; but the waning is far less frequent, far more gradual and far later in its onset, than the ordinary descriptions of stages, epochs, fluctuations and the like would lead one to believe. Much of human behavior can be explained by certain original tendencies which wane slowly or not at all, except in so far as the consequences of their manifestations stamp them out, or the law of disuse slowly weakens them.”—E. L. Thorndike, *Original Nature of Man*, 1914, Vol. I, p. 269.

¹² Constance Long, *An Analytic View of the Basis of Character*, *Psycho-Analytic Review*, Jan. 1920, p. 4.

risks at some other spot. Hence there is need for adaptability. Very much depends not only on the quantity of manpower, but on its mobility. So it is in the psychic realm. There is plenty of libido if only we can make it available for our purpose.

John B. Watson, professor of psychology at Johns Hopkins University, criticizes this term "libido" and suggests, as conveying the same meaning in a much more popular form, the slang word "pep."¹³ Each person has about so much "pep" which drives him on to action and which can be directed wherever desired.

Directing Instinctive Energy

We are especially concerned with the laws of changing the direction of instinctive energy. An instinct cannot be suppressed without grave dangers. It can be inhibited in one form and its energy turned in another direction. This change, called sublimation, is the common method of social adaptation. The instinct of acquisition, once expressed in the "law of tooth and claw," then in the tactics of "robber knights and barons," then in unrestricted competition, fraud, and exploitation, now has been sublimated into regulated industrial methods. Other instances of similar evolution have already been noted.

An attempt at suppression without an alternative opportunity for expression is apt to be as dangerous for the suppressing force as it would be for a person to sit upon the safety valve of a boiler when the steam was not being expended in any other direction.¹⁴ When this suppression is

¹³ J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, p. 181.

¹⁴ "It is Freud's theory of the sublimation of the instincts that most interests the sociologist. Under the influences of social control the impulses born of primitive instincts are inhibited and the energy which is restrained from its normal expression is expended in substitute activ-

individual it often finds expression in unconventional outbreaks, or even in insanity. Indeed a large percentage of the insanity not traceable to physical defects is now thought to be due to this cause. When the instincts of people in the mass are suppressed simultaneously, the resulting outbreak is apt to be combined through the group instinct into some anti-social action.

Serious as suppression is to the individual, its dangers seem to increase in geometric progression where whole groups are involved. One starving man standing before an open fruit store may be a potential thief of a crude, petty sort; a thousand starving strikers rushing into the market place can be a goaded mob of bedeviled human beings. Indeed one of the most urgently practical lessons which is to be learned from a study of applied psychology is that many aspects of the labor problem today present pathological characteristics because of the suppression of one or another compelling instinct.¹⁵

Instincts that Bear Upon Industry

Industry has special need of the instinct of gregariousness in developing group solidarity and esprit de corps. It is concerned with the instinct of acquisitiveness in all wage relations, in saving, and in the distribution of income. It touches closely at many points the parental or home instinct. Industry

ities. An instinct which has been inhibited from acting directly as a result of the social pressure of modern culture attempts to find its indirect expression and when successful in discovering an outlet in harmony with the demands of social opinion is said to be sublimated. Human society is made possible by this sublimation, and each person who becomes a member of the social group has to pass through the experiences of conflict between inner instinctive impulses clamoring for gratification and the pressure from the outward social environment which demands from the individual what seems best for the group as a whole."—R. A. Groves, *Sociology and Psycho-Analytic Psychology*, *American Journal of Sociology*, Vol. XXIII, pp. 112-113.

¹⁵ Ordway Tead, *Instincts in Industry*, 1918, p. 145. See also C. A. Ellwood, *Sociology and Modern Social Problems*, 1913, pp. 62-65; and C. H. Parker, *The Casual Laborer and Other Essays*, 1920, *passim*.

might make great use of the instinct of leadership. But the one basic instinct, the neglect of which has threatened our whole industrial life and the proper gratification of which is essential to the survival of a civilization based upon large-scale machine production, is the instinct of manipulation, curiosity, creation, or craftsmanship—as it is variously named. Of this instinct William James says:¹⁶

Constructiveness is as genuine and irresistible an instinct in man as in the bee or beaver. Whatever things are plastic to his hands, those things he must remodel into shapes of his own, and the result of his modeling, however useless it may be, gives him more pleasure than the original thing.

The proper sublimated expression of this instinct, as of all others, not only brings pleasure to the individual, but serves a most valuable purpose in society. Through its exercise nearly all other instincts are gratified. Watson, who like many other psychologists considers it a complex of several instincts and habits, considers that it *"is probably the most important of all original tendencies in view of the fact that nearly all later habit formations are dependent upon it."*¹⁷ It is upon this characteristic that Thorstein Veblen bases much of his economic philosophy:¹⁸

The position of the instinct of workmanship in this complex of teleological activities is somewhat peculiar, in that its functional content is serviceability for the ends of life whatever these ends may be; whereas these ends to be subserved are, at least in the main, appointed and made worth while by the various other instinctive dispositions. So that this instinct may in some sense be said to be auxiliary to all the rest, to be concerned with the ways and means of life

¹⁶ William James, *Psychology*, 1902, Vol. II, p. 426.

¹⁷ J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, p. 260. Italics in original. See also Maurice Parmelee, *Science of Human Behavior*, 1913, p. 252.

¹⁸ Thorstein Veblen, *Instinct of Workmanship*, 1914, p. 31.

rather than with any one given ulterior end. It has essentially to do with proximate rather than ulterior ends. Yet workmanship is none the less an object of attention and sentiment in its own right. Efficient use of the means at hand and adequate management of the resources available for the purposes of life is itself an end of endeavor, and accomplishment of this kind is a source of gratification.

Suppression of the Instinct of Craftsmanship

That an instinct thus endowed with a double appeal, by its own demands and its power to gratify other instincts, should be so suppressed that the most frequent indictment of those concerned with production is that they are indifferent to quality and quantity, testifies to a blunder somewhere.

The suppression of the instinct of craftsmanship through monotonous work, lack of participation in planning, irregularity of employment, arbitrary management, poor adjustment of workers to work, indifference to character of output, and many other features of modern industry, has produced exactly the standard reactions that are always found in such instinct suppression. The energy that would have found expression in production under proper conditions turns against the struggling instinct and finds an outlet in restriction of output, "ca' canny," and finally in such violent forms as sabotage and destruction of the essentials of the industry. Such inversions are frequent in the field of individual insanity. Many alienists hold that we are now confronted with a similar phenomenon, re-enforced by the group instinct, upon a much wider scale.

If industry is not to collapse it must adjust itself, as society has always done in the past if it survived, so as to utilize through proper institutions this powerful and essential instinct. It is part of the technique of the science of industrial relations to discover the means by which such institutions may be established.

CHAPTER IV

SOURCES OF LABOR SUPPLY

Standardization of Money and Materials

Standardization has long been applied to money and materials. The methods and the machinery of obtaining credit, of raising capital, and of distributing securities are among the most completely standardized elements of our industrial life. Moreover, there is only one kind of money to be sought for. It has been a long time since money in this country was composed of a variety of securities a knowledge of which was essential to financing. Such variations were once universal; and the war brought a recrudescence of them in many localities, showing the disadvantages accompanying a lack of standardization in such an important matter.

Materials, also, are rapidly becoming standardized. Their sources are fairly well known. In ordinary times the machinery for their selection operates with little friction and the methods of testing them are well established. The modern craftsman, unlike his primitive ancestor, need not seek his materials from forest and mine, selecting them from an unclassified chaos of untested substances.

The Labor Supply Not Yet Standardized

The labor supply, however, is still the entire population of the earth, unclassified, untested, and unstandardized. American industries have, at some time or other, drawn upon almost every section of this supply. If the person who is accustomed to employing labor on a large scale were asked to describe the mental picture that the words "labor force"

raise in his mind, he would probably describe a mob of unskilled adults with variations as to nationality, customs, mental abilities, prejudices, skill, and all other qualifications, which in general would run the whole gamut of any scale of measurements. Such a picture was long one that could be seen at almost any factory door. The presence of this supply of unskilled, unorganized workers has been one of the determining factors in the conduct, organization, and management of American industry. It has made for constant change, a large turnover, monotonous automatic labor, the drive system of management, little personal relation between the human elements, disregard of apprenticeship and training systems, and a social stigma on labor. It led to the idea of hiring and firing instead of adjustment and training. While the human material of industry represented a chaotic mob industrial relations necessarily lacked order and efficiency.

The war, with its destruction of men and material and its stoppage of immigration, followed by a recognition of the social problems that were aggravated by unrestricted immigration, has suddenly, and probably permanently, removed the inexhaustible reservoir of unemployed and unskilled adults. Even when industry slackens it is doubtful that immigration will ever flow as freely as before, or that great armies of the unemployed will be permitted to wander about the streets looking for work which is not to be found.

In the meantime industry is still confronted with the fact that it must, for a time at least, draw its labor force largely from unskilled and often non-English-speaking adults. For some years to come personnel relations must be concerned with the classification and adjustment of this mass.

A Cross-Section of Labor Supply

The first opportunity to get a view of a real cross-section of this labor mass came with the examination of the national

army. Even then there had been a crude classification before the men reached the camps. Non-citizens who had not waived their exemption were excluded, as were the most evidently physical defectives and there were, of course, no representatives of the great army of women workers. The description of such a cross-section is taken from the "History of the Personnel System of the United States Army," issued by the Adjutant General's office (Vol. I, page 9):

Ninety-eight per cent of the recruits sent to Camp Taylor, from a certain district in Gary, Indiana, could not understand the English language. Six per cent of all recruits claiming trade skill actually have the proficiency of experts in their trade. . . . About half of one per cent of all the recruits are so stupid, so near the lower border line of intelligence, that they cannot learn soldiering at all and have to be returned to their homes. Fifty-five different kinds of chemists and chemical workers, and forty-two distinct kinds of machinists required by the Army were found among the men in the receiving camps. Some recruits were cowardly shirkers, posing as conscientious objectors; others really were conscientious objectors, sane and sincere but determined; still others were equally sincere, perhaps, but so cranky and ego-centric and unstable that they needed to be treated like borderline cases of insanity. At Camp Devens, Massachusetts, and Camp Lewis, Washington, more than twenty per cent of the soldiers, a surprisingly high fraction of the total, had the native ability and high intelligence required in army officers. Thousands of the new soldiers were physically unfit to take the training in combat units until they had first spent some weeks in the Development Battalions.

Classification of Labor by Locality

The classification of this chaotic labor mass takes place today by a series of stages, largely unconscious and uncertain in their results. Making this classification conscious, intelligent, and in accordance with established standards that guard

the well-being of the workers, the efficiency of industry, and the interests of the social whole is the first great task of scientific personnel management.

The first rough classification depends upon the location of the plant. This point commonly receives much less attention than it deserves. Much more weight is apt to be given to the source of raw materials, the facilities for transportation, and market accessibility than to labor relations. Even in regard to these material and mechanical conditions little system has been used until within recent years. The managers of some of the systems of chain stores were the first to standardize the market element in retail trade. Before one of these is located a count is kept for several days of the passers-by, and so far as possible they are classified and grouped. If they are hurrying past to catch trains in the morning and evening their purchasing value is much less than if they pass the place regularly throughout the day as a part of their ordinary work. Tests have established the relative value of different classes of crowds and standardized formulas give with great accuracy the trade which may be expected and the rent which can be profitably paid.

With regard to the labor supply in determining the location of a plant, the reasoning has usually followed one of two lines. Either the plant is placed within, or in the suburbs of, some center of population from which it is expected laborers may be attracted; or it is placed at some distance from such a center with the idea that the workers who are then brought to the plant will be bound to their only source of employment and be more docile.

It is easily possible to make this classification by location effective in much greater detail. Every great city is divided into well-marked sections settled by groups with a common interest of race, trade, economic level, or other principle of gregarious grouping. Nearly every concern wishes to draw

its personnel mainly from some one of these groups, unless it is still so antediluvian in policy as to believe that greater effectiveness can be obtained by a heterogeneous mixing to prevent solidarity within the labor group. If the location of the plant is determined by the proximity to the sort of labor desired, and if due care is taken to assure the permanency of the neighborhood grouping, the labor turnover will be greatly reduced and the effective organization made easier from many points of view.

Neighborhood Surveys

A neighborhood job survey is an essential preliminary to the intelligent location of an industry. This does not mean a house to house canvass. Consultation with teachers, ministers, old residents, tradesmen, public officials, and a few others, supplemented by personal observation, will give a fairly close knowledge of the character of the population of any district. If some special skill is required, and it is not desired to establish special training departments in the plant, then it is important to know the facilities for obtaining such skill. What do the schools offer? What is the prospect of their expansion in the desired trade lines? ¹

¹"The first thing I would do if I were confronted with such a proposition [locating a factory] would be to make a study of the labor situation in that locality before the ground was broken. The first thing I would do would be to take up the question of the labor supply, with all the existing sources of labor supply at that time. I would go to the labor unions and raise all the questions in advance that might be raised afterwards, as far as anyone could humanly foresee them. Next I would show that in so far as there were any unions in that vicinity connected with those trades—I should run a preferential union shop—I would appeal to the unions for men before I appealed to anyone else. If they could give the men I wanted I would take them in preference to anybody else. Then I would say that I would pay as the piece rate of my wages the union rate in that vicinity, regardless of whether or not the shop was unionized. And any other methods of pay would have to be built on that."
—R. G. Valentine, *Scientific Management and Organized Labor*, Bulletin of Taylor Society, Jan. 1915.

It is an old principle of trade location to seek a group of similar industries in the hope of obtaining employees already trained. There are many other advantages to be found in such industrial grouping. It is undoubtedly true that men of the same trade tend to flock together, but the principle of such labor recruiting is also responsible for much of the present useless, wasteful, and harmful labor turnover. It is a fact that most employers consciously or unconsciously expect to steal the skill of their workers from their competitors. Generations have laughed at the story of the mythical Yankee schooner whose crew, when wrecked upon a desert island, became rich swapping jack-knives. Yet employers without training departments are operating on the same plan. Such employers have left behind them the historical stage when raw material was obtained by piratical raids, and even that more recent stage when similar raids upon public resources were looked upon as legitimate; but they still believe it possible to conduct a business by securing trade skill which they have not helped to produce. Such destructive, competitive recruiting is responsible for an almost immeasurable waste and is a prime cause of the present large turnover.²

Present Methods of Securing Labor

This wasteful distribution of labor is caused in part by reckless, wholesale advertising. Until a better instrument of distribution is installed in this country, such advertising must sometimes be used. But it is only another example of wholesale fishing in an ocean of chaotic elements, in the hope that proper fish will be secured. Such a system of securing labor can have no logical place in the distribution of unskilled and

² Proceedings of Employment Managers' Conference, Rochester, May, 1918; United States Bureau Labor Statistics, Bulletin No. 247, pp. 55-88.

the commoner skilled trades, though it is possible that it may long be found useful in searching for labor of the lowest grade.

The private employment office operated for profit is an unmitigated nuisance, at least in the field of unskilled and semiskilled labor. It is to be endured only because of the absence of properly managed public offices. Private employment offices depend upon fees incident to changes in positions. The larger the turnover the greater the income of the private employment agent. To offer the highest reward for the most undesirable feature of a function is putting a greater strain upon the acquisitive instinct than the interests of society should permit.

The story is told of one such private employment agency, that in the time of the most pressing demand for labor during the war, it delivered a train-load of men to one plant, after having had them sign application blanks for jobs in another to which they were to go within a few weeks, paying the agency a fee for both positions. I have personally known such agencies to furnish section hands to padrone foremen with the understanding that the men were to be discharged within a short time and new applications filed, the fee being divided between the padrone and the agency.

Public Employment Offices

The natural and scientific organ for a proper preliminary selection should be an employment office. Here the standards of jobs, skill, and other broader characteristics, should be established for entire industries and the entire nation.³ This can be done impartially, and with the full confidence of all concerned, only by a publicly operated office.

Public employment offices, when operated by the politi-

³ See pp. 238-239.

cians, have shown a tendency to become mechanical and ineffective. In some states where they have existed for years they are practically useless. In Ohio and Wisconsin, on the other hand, they have played an important part in the distribution of labor.⁴ It is possible that if such offices were placed under the supervision of a joint board chosen by the organizations of the employers and the employees, who would assist in the management, that the inefficiency of the board would be removed. This would also insure an impartial standardization of jobs and skill and remove that suspicion which is otherwise attached to the actions of politicians.

Formation of Labor Reserve

Within each plant there must be a further classification and adjustment, based upon co-ordination of all sources of supply. This classification and adjustment must be made with a view to permanent relations and promotion within the plant. The foundation of this work must be the formation of a classified list of prospective employees. The best managed firms of today have already learned to look upon such a list as a labor reserve, of but little less importance in successful management than an analogous financial reserve. A list of this sort, classified and kept up to date with information steadily accumulating regarding the names upon it, insures that sound foundation upon which alone an effective personnel department can be built.

The most valuable source of new names for such a list should be the friends of present employees. Here is the acid test of management and plant popularity. There are firms that have a waiting list, even at the peak of production. Others are always complaining because they cannot secure

⁴J. R. Commons, *Industrial Goodwill*, 1919, pp. 78-80. D. D. Lescohier, *The Labor Market*, 1919, Chaps. VII-IX.

workers.⁵ One of the classic tales of frontier days explains and illustrates the reason for this difficulty.

As a prairie schooner came to the edge of the little settlement its driver hailed the pioneer at the first cabin door with, "What sort of place is this?"

True to type, the answer was a question, "Whar did ye come from, stranger?"

"Jest a ways back here in Ohio."

"What sort of place was it thar?"

"No good. Jest a lot of slanderous backbitin' gossips that wouldn't give the least accommodation. How is it here?"

"Jest the same," concluded the pioneer. "You might as well move on."

A few minutes later a second prospective settler from the same "back East" locality came in sight, and the conversation quickly reached the same question, "What sort of people did you have back thar?"

But the reply was different: "A fine lot of folks, kind, accommodatin', and helpful. I hated to leave 'em. How is it here?"

"The same sort," said the settler. "You'd better stop a while."

Plans for Recruiting Labor

Factories, like frontiersmen, take their neighbors along. Some always have disloyal, lazy, ungrateful workers and

⁵ "The natural and most satisfactory method of recruiting new workmen is through their friends and acquaintances already employed in the establishment. This method works a treble benefit. It is a compliment to the worker if he is asked to recommend somebody; it is a help to the employer in getting a good selection of recruits; and it is a help to the new man or boy in getting over the early period when he is most likely to be discouraged. It attaches both the old and the new worker to the firm."—J. R. Commons, *Industrial Goodwill*, 1919, pp. 74, 75.

W. B. Simmons, president of the Futurist Company, *More Applicants than Jobs*, *System*, Feb. 1920, for detailed methods of direct neighbor recruiting of employees in time of labor scarcity.

others have the reverse. The conclusion and the effects are inevitable. If present employees will not recommend the place to their friends, then they do not wish to stay themselves and will not stay long nor do good work while they do stay. If such good-will exists, there are many ways to use it in building up a list of prospective employees. Men, and even more, women, will appreciate being asked to fill a vacancy from among their friends. We all prefer to work with those whom we know and like. Persons so obtained are apt to be permanent employees. An occasional distribution of application blanks, to be handed to friends for possible future use, not only helps build up the list but tests the feeling in the plant.

Records of employees leaving should, of course, be kept. Everyone likes to think that his return is desired, and those who return will appreciate proof that they have not been forgotten. The names of applicants for whom there is no immediate opening also belong to this file. A large and successful department store in Chicago enjoins its employment department to send every rejected applicant away a friend of the store; and that those for whom there are no present positions, but who are desirable applicants, are always to be invited to fill the vacant positions before the concern advertises for help. Moreover, every labor union maintains a list of unemployed. These lists should be consulted when available, and names of desirable workers learned in advance.

It will be noticed that all such plans for recruiting labor are based upon the supposed permanence of a large body of idle adults. This supposition will probably be henceforth contrary to fact. The mob of idle, largely unskilled, uneducated, and un-American adults which has so long constituted the main reservoir of labor power is rightly passing away. It should never have come into existence. An unskilled adult, and especially an involuntarily idle one, is a reflection upon

the society that permitted him to grow up without skill, and that permits him to seek in vain for an opportunity to produce the goods of which that society is in need. A reserve army of unemployed adults large enough to meet the growth and changes of industry implies a waste which should be intolerable to an efficient nation. Its existence indicates an unhealthy, abnormal situation.

Natural Sources of Labor Supply

Every society has a natural supply of new workers in the youths ready to leave the educational system. These constitute the largest source of industrial recruits. The more enterprising firms are already forming connections with this source. The National Association of Corporation Schools⁶ has conducted an investigation to determine the "usefulness of a Central Bureau for estimating year by year the future requirements of corporations for technical graduates, and more particularly for collecting personal data concerning prospective graduates to which corporations could apply for men." This report recommended an elaborate system for collecting such information concerning students in advance of graduation as would facilitate selection and placement. So far as technical, continuation, and trade schools are concerned, the connection with industry is already close. While there is much opportunity for improvement in the technique of the relations, that improvement is already under way.

The much larger number of graduates from grade and high schools and from many of the colleges and universities, together with the still larger number that do not graduate from any of these; are still permitted to drift aimlessly, subject to all the uncharted influences of industry, in the hope

⁶ Report 7th Annual Conference, National Association Corporation Schools, June 1919, pp. 121 *et seq.*

that they will in some way become related to the industrial process. Most of them do, but at a tremendous cost.

Necessity for Vocational Guidance

Here is very plainly a double duty; industry must make preparation to receive the youth, and the school must prepare its students for industry. This preparation will require close co-operation between personnel management and education. The schools are preparing for their work through the movement known as "vocational guidance." The activities covered by this movement are described by one of the leading writers upon it as follows: ⁷

Giving information about commerce and industry in order to help in the choice of an occupation or a job; giving opportunity to discover talents with the vocational choice in mind; advising pupils to enter this or that school, for the purpose of discovering their talents or preparing for an occupation; advising in regard to promotion, change of job, after-education, or advanced study; supervising the entrance into or progress in particular positions or chosen occupations.

It will be noticed that this movement overlaps the work of personnel management in industry at many points. This overlapping does not necessarily mean duplication of work, but should bring valuable co-operation.⁸ Vocational guidance approaches the subject primarily from the point of view of the welfare of the prospective worker, and only secondarily from that of industry. It makes its own elaborate job analyses, conducts placement bureaus instead of employment bureaus (the distinction is suggestive of the point of view), and follows up promotions and management in order to protect and assist the youth.

⁷ J. M. Brewer, *Vocational Guidance Movement*, 1918, pp. 1, 2.

⁸ *Ibid.*, p. 115.

Vocational guidance naturally finds its greatest field for work in connection with the schools. It uses the same methods of testing abilities, has its own application blanks, and constantly meets the same problems, from another angle, as confront the employment manager. Already this has led to a combination of effort in united organizations, and to a co-operation that must grow closer as time passes.⁹ The work is reacting upon the schools and transforming them. Just as in industry it is becoming evident that the only driving force that can be depended upon through a long period is the instinct of workmanship and its power to gratify other instincts, so the schools are learning that only when they hitch education to industry and arouse the life-career motive, can the best educational work be done.¹⁰ Here, as at every other point, the idea of gratifying intelligently trained desire and utilizing suitable ability is being more and more emphasized. Because of his adjustment to his right place in industry the worker has an opportunity to grow and develop throughout a lifetime.

Supervising the Worker's Progress

The vocational guide does not end his work with the placement of the prospective worker. Indeed there is a tendency to look upon this work as of least importance. First attention should be given to preparation for the position, and then to supervision after entry into industry. Nearly every plan provides for an elaborate investigation of the careers

⁹ J. M. Brewer, *Vocational Guidance Movement*, 1918, p. 115.

¹⁰ "We ought not to be surprised that the schools which avail themselves of this strong motive get the best work from their pupils, and therefore do the best work for the community. Indeed the hope and purpose of improving quality, or quantity, or both in our daily work, with the incidental improvement of the livelihood, form the strongest inducement we adults have for steady productive labor."—C. W. Elliot, *The Value During Education of the Life-Career Motive*, in Bloomfield, *Readings in Vocational Guidance*, 1915, p. 4.

of the young workers. This means that henceforth a powerful influence will be thrust into industry from the side of the schools for the protection of the employees, and that industry must adjust itself to this influence. E. L. Thorndike observes, concerning the rapidly growing influence of workers in vocational guidance: ¹¹

This new officer of the school who does this work, mediating as he will between the employers and the employed, will very soon become important in connection with very many other relations between the capitalist and the laborer. This new school officer—this “vocational guider”—will advise boys and girls not to enter certain industries or certain trades, or even not to enter certain individual factories or shops. He will do this on moral, or hygienic, or economic grounds.

Educational experiments in the form of part-time schools of various sorts, and of almost every conceivable form of technical and trade schools, are forming other bonds of close connection between the factory and the school. They all tend to forecast the approach of a time when a mob of idle, unskilled adults as a source of labor supply will vanish, to be replaced by a steady, regulated flow of youths from schools. These will come trained for the work in which they are interested and for which they are best fitted. For some years they will be advised and assisted by trained school officers, ready to help in rectifying mistakes, making possible changes and new starts, and bringing to bear the broader knowledge and trained minds that will be of help to the employee. While there must be continuity of progress and permanence for those who wish it, there will be no closed walls condemning anyone to life imprisonment at hard labor in a trade because of an ignorant mistaken choice in youth.

¹¹ E. L. Thorndike, *The University and Vocational Guidance*, in Bloomfield, *Readings in Vocational Guidance*, 1915, pp. 100, 101.

Such a working connection between trade and industry will alter every feature of both and profoundly affect every problem in personnel relations—a fact that should be constantly kept in view by anyone working in either field.

CHAPTER V

APPLICATION BLANK—REFERENCES— INTERVIEWING

Individual Adjustment to Industry

Any analysis of the labor supply should aim primarily to further a proper adjustment between the worker and his job, rather than to select and reject a number of applicants. Industry needs every person capable of production and can use nearly every adult in some position. The only justifiable ground for the rejection of a new applicant for work is that the person rejected would be injured by employment, or would injure his fellow-employees or society. Establishments that a few years ago were hiring a small percentage of applicants and yet had a turnover of 400 and 500 per cent, now boast of their ability to use such exceptional classes as discharged convicts, morons, disabled soldiers, and industrial cripples, with a lower turnover and improved production. The special training systems established during the war and the rehabilitation work of reconstruction have revealed hitherto undreamed of possibilities in the development of human capabilities.

Every step in the choosing and placing of labor should be guided by the constant idea of permanence and promotion. An efficient employment department begins to plan promotion with the first interview. It views every person who enters the plant from the point of view of a life career in that plant.

Basis of Proper Adjustment

Proper adjustment of an individual to industry must rest upon a series of judgments as to abilities. Unless these judg-

ments in turn rest upon exact knowledge, they will not be correct. Such exact knowledge can be obtained only by means of standardized tests to determine the qualities of the applicants. Qualities thus discovered can then be compared with job specifications, as determined by an accurate and standardized job analysis. Only such an accurate and dependable foundation makes possible that planning of placing and promotion which insures that no movement in the personnel is made without a view to the succeeding step.

Application Blanks, Old and New

The first stage in selection is usually the filling out of an application blank. The older form of application blank was a maze of miscellaneous questions—a fish-net in which to catch all possible information in the hope that some of it might be worth saving. Treatises on supposedly scientific methods of hiring contain samples of such blanks, with a hundred or more questions. Scientific analysis applied to such blanks caused a rapid shrinkage in size, as useless questions were weeded out.

The essential point with regard to any question for an application blank is: Will the proposed question reveal the existence of a quality helpful to production? The object of an application blank is to find out the things the applicant has *done* that prepare him for his work, and to record his physical and mental qualifications. It should not concern itself with what he likes or what he believes. The truth is that much of the information supposed to be obtained by the older methods was found not to be true after it was recorded.

The Futility of "Character Analysis"

This was especially true of attempts to make a "character analysis," by means of such questions as: "Who is your

favorite movie actor?" "What books have you read?" "What are your amusements?" etc. Long lists of objects, actions, and characteristics were arranged in an order supposed to compel the applicant, in the process of checking those he preferred, to reveal his inmost thoughts.¹ All this lent an air of mystery and wisdom to the supposed character analyst, but was never found to have any particular connection with production. At least, there are no records of the superior productive power of those chosen according to this method. An analysis of this system showed that it traveled in a circle and never arrived at the destination aimed at. Furthermore, as it was concerned with a changeable matter—moral character—it was incapable of a useful or permanent course of procedure.

Concerning such questions as, "Can you manage people well?" and "Do you like to be with people?" Hugo Münsterberg, the psychologist, says: "It is clear that the replies to questions of this kind can be of psychological value only when the questioner knows beforehand the mind of the youth, and can accordingly judge with what degree of understanding, sincerity and ability the circular blanks have been filled out. But as the questions are put for the very purpose of revealing personality, the entire effort tends to move in a circle. To break this circle, it indeed becomes necessary to emancipate oneself from the method of ordinary self-observation and to replace it by objective experiment in the psychological laboratory."²

Uselessness of Certain Queries

The absurdity of such questions becomes evident when they are robbed of camouflage and stated baldly. The real

¹Fritz Kemble, *Choosing Employees by Mental and Physical Tests*, 1917, pp. 55-61; Frank Parsons, *Choosing a Vocation*, 1909, pp. 26-46, give samples of such blanks in two allied fields of selection.

²Hugo Münsterberg, *Psychology and Industrial Efficiency*, 1913, p. 45.

information sought is a truthful reply to the question, "Are you lying?" Both the liar and the truthful person would answer "No," unless, perhaps, the latter were barred by modesty, which introduces just enough uncertainty into the matter to make it a subject for the fortune-telling, gambling method of character judgment. The presence of the modesty element may have been responsible for the experience of Charles P. Avery, of Marshall Field and Company, who noted that, "One such form was returned to the superintendent with the astonishing but befitting notation, 'Self-praise is no recommendation.'"

But the effort to probe into character is too fascinating to be easily given up. While the more evidently useless questions have been removed from most application blanks, there are still many that ask the prospective employee to "place a check mark after such of the following words as most clearly apply to himself." Then follow some thirty or forty terms, such as, careful, cautious, courteous, patient, cheerful. Aside from the inability of the individual to analyze himself, there is the further difficulty that a correct analysis at one time, in relation to one set of conditions, would be false in relation to a multitude of others. No one person is careful at all times. All of us are sometimes incautious; if we were not it would be much the worse for the world. Patience and cheerfulness are even more dependent upon conditions.

Although these facts concerning the instability of character, the inaccuracy of self-analysis, and the uselessness of such misleading information in determining fitness for work were quite well understood at the time this nation entered the war, yet even the highly trained experts who had charge of the Department of Personnel could not wholly escape traditional methods. In the beginning a form was used which called "for an estimate of the man's (a) trustworthiness, (b) general intelligence, (c) ability to supervise and direct men,

(d) ability to work with others, (e) his skill as a — (trade entered on blank), and (f) the general estimate of the man's character and qualifications." But we also learn that, "The blank was never used except in one camp, and no particular value was found for it there."³

Of still other methods, which sought through references to previous employers and a grading scale to determine similar indefinite characteristics, the report says: "This system was utilized in classifying thousands of men but soon fell into disuse when it became apparent that interviewers showed great differences in the way in which they would rate the same man."⁴

Essential Queries

By this road of experience, tested by results, the conclusion has been reached that an application blank should confine itself to facts that are susceptible of test and standardization. It should contain names, addresses, education, technical training, previous occupational experience, and such other *facts* as experience proves will aid in adjusting the applicant to the job. The standard to be followed is: record only tested, or at least verifiable facts, having direct relation to production.

Standard for Evaluating References

The attempt to base action upon opinion extends to the use of references. These are usually filled with meaningless generalities, which cover up lack of exact knowledge and disinclination to make the exertion necessary to procure it. A reference, to be of any value, must tell just what the employee *did* in his previous position. This should be made as easy as possible by a standard letter of inquiry. Such a letter

³The Personnel System of the United States Army, Vol. I, p. 137.

⁴The Personnel System of the United States Army, Vol. I, p. 139.

was developed in the personnel division of the army,⁵ and a variation for industry is proposed by its originator, Professor Walter Dill Scott.⁶ Its principal advantage is in the style and system of checking, which makes such information as is received easily classifiable.

Employment managers are beginning to question whether the information obtained from references is really of much value. They contain certain inherent defects which cause them to mislead almost as often as to help. Success or failure in one position is not always duplicated in another. If it were, most of us would long ago have become glorious successes or abject failures. We all succeed many times and fail many times, and often gain as much from the failures as from the successes. Even a discharge for incompetency or other cause should be looked upon as a punishment for one delinquency, and in industry no more than in law should a "person be twice put in jeopardy for the same offence."

A reference from a plant without an organized employment department lacks force for still other reasons. Every employment manager knows how difficult it is to apportion blame in the constant controversies between foremen and employees. Therefore a reference from an organization where no impartial body exists, is bound to be an ex parte statement. References are of much greater value from establishments where a properly organized employment department includes a division for impartial investigation of grievances. References often come from the head of a firm, who knows little of the actual work of the employee. It is seldom that the foreman in direct charge of the work is reached, and even more seldom that he is an impartial judge.

⁵ The Personnel System of the United States Army, Vol. 1, p. 138.

⁶ *Annals of the American Academy*, No. 154, pp. 183, 184; also S. H. Slichter, *Turnover of Factory Labor*, 1919, pp. 312, 313.

Interviewing the Applicant

When the prospective employee does not fill out his own application blank, its preparation is a part of the work of interviewing. This procedure is necessary when hiring illiterates, though it has the disadvantage that one possible chance of checking up errors in judgment and fact is thus eliminated. "Carefulness and thoroughness in interviewing is the principle thing which distinguishes high-grade practice from poor," says Slichter.⁷ Proper interviewing requires preparation and training on the part of the interviewer. It replaces impressions, guesses, and estimates of human nature with systematic questioning to obtain definite information. Because such careful, systematic work is difficult, because it requires study and affords no opportunity to display ability as a judge of human nature, there has been a tendency to substitute a sort of mystical fortune-telling system called "physiognomy."

The Pseudo-Science of Physiognomy

This alleged science purports to teach an interviewer how to tell the character of an applicant by the color of his hair, the texture of his skin, the concavity or convexity of his face, and similar superficial characteristics. It is not something new, in course of development. Physiognomy is thousands of years old and always was a fake. Its every phase has been tested by thousands of experiments and always proved useless and deceptive. Under various disguises, it has deluded anthropologists and criminologists. It was the basis of the famous "dolichocephalic blond" theory that contributed to the doctrine of the superiority of the Teutonic race. In one form or another it has been used to prove the superiority of every race. Every suggested correlation between physical

⁷ S. H. Slichter, *Turnover of Factory Labor*, 1919, p. 302.

appearance and mental abilities has been tested out and its falsity exposed many times.⁸

Concerning the attempts to use this hoary fraud in the field of vocational guidance, John M. Brewer well says:⁹

The fourth kind of questionable guidance is based on an exaggeration of the importance of physical characteristics. . . . There are courses for business men in which blonds and brunettes, brown eyes and blue, aquiline faces, small lips and tapering hands are discussed in their vocational significance. It is supposed that employment managers can by this means find short cuts to "size up" applicants and tell which to hire and which to reject. Current magazines are supplied with the advertisements of the people who furnish such information. . . . The effect of these experiments goes deeper than mere loss of money and disappointment; it involves the injustice of misjudging men. This teaching goes on in spite of the fact that not even criminals can be discovered by their faces; if they were the work of detectives would be easier.

Methods of Physiognomy Fakers

The methods by which this pseudo-science is exploited are those that always characterize the faker. Its advertising retains all the features that marked the methods of the man with the gasoline torch who visited the small town in our boyhood days, selling bottles full of the marvelous remedy guaranteed to cure anything from dyspepsia to baldness, toothache, or corns. One such firm advertises that its graduates have selected "during the past year" (but date of year not given) 12,000 employees without a single mistake. But

⁸"So far as phrenology and physiognomy are concerned they should be regarded not, as some employment managers mistakenly view them to-day, as sciences in their infancy, but as pseudo-sciences hoary with age and in the main, due to their high percentage of error, neglected because untrustworthy."—E. B. Gowin, *Selection and Training of the Business Executive*, 1918, pp. 70-73.

⁹J. M. Brewer, *The Vocational Guidance Movement*, 1918, pp. 165, 167.

there is no mention of how error was tested. We are not told, with names of firms and territory covered, that 100 blonds were chosen as salesmen and sent out in equal competition with 100 brunettes, with details of comparative sales.

The worker in the field of personnel relations should beware of the peddlers of panaceas. There are no short-cuts. Shun those who use the terms, methods, or phraseology of discarded sciences, or the discarded methods of present sciences. The methods and phraseology are easy to learn, "make a noise like wisdom," and are the patter with which the sleight-of-hand artist entertains his victims. Avoid hints of the mysterious. The gold brick is carefully hidden; the receipts for the patent medicine came from some secret source; always the victim is to be let in on the ground floor to some knowledge not commonly available. It should be said once for all that no facts or rules unfamiliar to all psychologists are to be found in any mental or psychological system, or in any advertised course of training for memory, or anything else, and that these systems seldom contain anything that is both new and true.

Character Reading versus Facts

Schemes for character reading are especially apt to deceive because they cater to what has hitherto been the customary method of choosing employees. Employment managers have been selected because they were presumably good judges of human nature. We are analyzing human nature into a changing complex of capacities, abilities, instincts, habits, impulses, hopes, and many other elements. We are developing ways of testing the relative strength and value of some of these. We are also discovering that the very characteristics which the old intuitive methods pretended to measure are just the ones least capable of measurement, and the least permanent. We know that character, so-called, is something that changes more

readily and suddenly than almost any other part of man's mental make-up. If this were not true, much of the dramatic in literature would be rejected as untrue to life and the existence of religious conversions would be impossible.

In spite of these facts, the attempt to judge character will probably never be entirely given up. Indeed it is impossible to avoid so-called intuitions.¹⁰ They can only be warned against as the least reliable of all the information that will be gained during the interview. Any conclusion that is just and fair to use in passing judgment upon a human being should rest upon tested, standardized facts. This rule is the basis of the elaborate civil and criminal court practice that

¹⁰ The difficulties of judging character lead so able and careful a writer as S. H. Slichter to the following contradictory positions:

"Fully as important as the specific information given by the applicant is the impression gained of his character. The estimation of the character of applicants, however, probably constitutes the least satisfactory phase of interviewing practice.

"The specific qualities of character in which the interviewer is most interested include honesty, frankness, intelligence, earnestness, whether the applicant is a man of definite aim, whether he understands the meaning of responsibility, whether he is industrious, painstaking, willing to do what he is told, appreciative of good treatment, whether he responds to it with loyalty, whether he is willing to cooperate with others, whether he is of agreeable personality and likely to get on well with his associates.

"There is no reliable evidence of these traits. External manner and appearances, features, facial expression, handshake, clothes, attitude toward filling out the application blank, attitude towards the questions asked him and character of his answers are all misleading. . . . The interviewer seeks to penetrate beneath these externals and to see what is really there. He arrives at his conclusion, however, not as a result of a process of conscious and systematic analysis of the applicant but in the same way that men generally do, as a result of intuition. Intuitively he feels either that the applicant is a desirable or an undesirable sort. Upon the soundness of his intuition depends his reliability as a judge of men."—S. H. Slichter, *Turnover of Factory Labor*, 1919, pp. 309, 310.

It would seem that a method so unsatisfactory and unscientific had better be discarded rather than followed, and that where facts are all misleading intuition is hardly a safe guide.

"Any psychologist at the present time who claims he can pick out defective individuals from normals by means of photographs or even by mere immediate visual inspection would lose respect of his colleagues."—J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, pp. 406, 407. Watson gives, pp. 227-228, an outline for measuring emotional balance and relations which is suggestive of the lines scientific progress is taking.

has been built up through the centuries. It is the duty of the interviewer to get the essential facts required for a judgment as to an applicant's ability and ambitions in relation to the industry. Tested, standardized, and classified facts can be used as the basis of conclusions by anyone without the exercise of so uncertain a factor as intuition. It is not so many years since judgments of materials and methods in industry were largely intuitive. No one would wish to abandon the present system of chemical and physical tests for these old methods.

Requisites for Successful Interviewing

The interviewer should not fish for facts. He should have before him an analysis of the place to be filled which should
1. describe all its characteristics. He should know all the details
2. of the environment to which the prospective worker must
be adjusted. He should know its physical, mental, and social
requirements, as well as its trade qualifications. Here we are touching upon the key to the difficulty of character analysis. Character is a matter of relation to environment and depends as much upon the personal and physical surroundings as upon the innate characteristics of the individual. If some of the energy that has been devoted to hunting for the elements
of character in the man were ^{now} devoted to analyzing the char-
acter-producing elements of the job, the solution of the problem might be nearer at hand.¹¹

¹¹ "An unusual opportunity of observing the relativity of moral qualities in a general way was afforded by a training course, consisting of about fifteen college men who were being shifted from one shop and department to another in a systematic attempt to acquaint them with the fundamental aspects of the industry. These men were naturally sufficiently interested in their work to maintain the required moral level. Nevertheless, their interests and moral traits varied noticeably as they were shifted from one shop or office to another. . . . Not only their enthusiasm but their daily attendance, their attentiveness, and the quality of their work were governed in a marked degree by these changing factors. Whereas one kind of work elicited the most desirable moral traits in one man, it had quite the opposite effect on another. At the end of the

The interview should have promotion as well as immediate placement in view. The ambitions of an applicant are almost as important as his abilities, because they measure in some degree his future possibilities. Moreover, their gratification affords almost the only way to secure the full exercise of his abilities. When convinced that there is a place for the applicant, the interviewer should make it his duty to "sell" the job so that it will stay sold. This necessitates agreement as to wages, and an explanation of conditions connected with the work, especially a description of disagreeable features, if any, of the job.¹² The new employee will find enough unexpected difficulties and will be much more easily satisfied if he is agreeably disappointed by finding some things better than he expected. *but overall the job.*

The questions to be asked should be standardized. There are right and wrong questions to ask, and a right and wrong way to ask them. When a question has been found that produces desirable information, it should be written out and examined to see if it is in the best possible form. This means a saving of time and greater accuracy and uniformity in results. Ultimately, by the use of scientific methods, the interviewer's questions should become a set of accurate oral trade tests.¹³

Interviewing of this character calls for training. No efficiently operated house would send out an untrained salesman. The work of the employment department has a more lasting influence upon the firm than the work of the salesman, and calls even more for training. Proper interviewing implies perfect familiarity with the job analysis, with all the condi-

course all the men found permanent positions of widely differing kinds, and, in most cases, their work was such as to elicit the best qualities in them."—H. C. Link, *Employment Psychology*, 1919, pp. 204, 205.

¹² S. H. Slichter, *Turnover of Factory Labor*, 1919, p. 311.

¹³ See pp. 94-102.

tions in the plant, the preparation of standard questions, and knowledge of the proper value to be given to replies.¹⁴

Necessity of Physical Examination

A physical examination is frequently used in hiring. Compensation laws have compelled this in many states. Wherever such an examination leads to a large number of rejections, it meets with strong objection from the employees. This is a part of that reaction which labor, or any other group, shows when it feels that discrimination is weakening the group solidarity. This same group solidarity, based on the instinct of gregariousness, is one of the most valuable industrial assets. Whatever attacks it reduces production. Moreover, the wider group solidarity of society demands that all productive power be used, and that no person capable of production without injury to himself should be barred from industry. That there is danger of such unsocial rejection is seen from the following extract from the report of the Illinois Health Insurance Commission, May 1, 1919, concerning the results in eight "possibly typical firms":

The industrial physicians connected with these eight establishments in 1917 examined 69,171 male applicants for work. They found 22,866 or 33.1 per cent of these diseased or defective, and rejected 13,119 or 57.4 per cent of them as unfit for employment. The rejected constituted 19 per cent of those examined. Among the 22,866 were 1,406 with hernias, 205 with tuberculosis, 342 with kidney trouble, 1,184 with high blood pressure, 1,663 with defective vision, 564 with bad teeth, and 19 with contagious diseases. In using these statistics it should be remembered that they have been obtained from the examination of men not too ill or too defective to apply for work.

¹⁴ The Personnel System of the United States Army, Vol. I, p. 119.

Personnel work is less concerned with rejection than with rectification and proper adjustment. A physical examination should be the first step of a general physical program of industrial health care. If it is so recognized, the objections of the employees will disappear.

Advantages of Physical Examination

A physical examination protects employees against communicable disease and insures early detection and treatment of defects and ailments that, untreated, might become serious. Such an examination makes possible the adaptation of work to the worker, excludes those with tubercular tendencies from dusty, poorly ventilated jobs, and similarly assures such persons of work that is not injurious. It affords an opportunity for hygienic instruction to groups and individuals and supplies a record of physical conditions. It makes possible the prevention of occupational diseases and brings to the attention of the firm disagreeable and unsanitary conditions, such as are often responsible for a large turnover and the physical deterioration of employees.¹⁵

The physical examination should include tests of strength, sight, hearing, reaction time, fatigue, and other features related to industrial capacity and adjustment. The tests for all these points have been standardized, they can be given with little additional trouble, and they form a valuable foundation for later work. All this requires that the physician who makes the physical examination should co-operate in the making of the job analysis and should be thoroughly familiar with the requirements of each position. His contact with employees should enable him constantly to add to the information descriptive of each job, and thus insure a continuous

¹⁵ R. A. Feiss, *Personal Relationship as a Basis of Scientific Management*, *Annals of the American Academy*, No. 154, pp. 37-41.

improvement of working conditions and a better adjustment of the personnel.

Throughout all stages of this preliminary work it must be constantly repeated that the guiding principle is that all action is to secure permanent adjustment as part of a well-balanced working force.

CHAPTER VI

MENTAL AND TRADE TESTS

Testing Ability by Trial and Error

Ability to produce is what is sought in selecting and adjusting the human as well as the mechanical elements in industry. Hitherto methods of discovering and grading ability have been diverse and uncertain. At bottom they have rested upon the method of trial and error. Even when most effectively standardized, neither the application blank, reference, nor the ordinary interview, gives a definite classifiable standard of ability. All these methods leave ability to be tested by actual work in the plant—the most expensive and unsatisfactory way.

The method of trial and error has gradually been abandoned in one department of life after another, until the remaining foothold is almost solely in the field of management. Today it is derogatory to a mechanic's skill to say he is a "cut-and-try" man. Yet management and personnel work still depend upon this old plan of natural selection, trying all possible adjustments and experiments and seldom even keeping an accurate record of failures and successes so as to avoid repeating errors. I have several times tested the extent of the success of this method in industry by taking two city directories issued some twenty years apart and checking the number of firms that remained in business for the period, which is less than a single lifetime. It is not customary for a successful business to cease operation within twenty years, yet seldom more than 10 per cent of those examined remained continuously in existence for that period.

The inference is that the managers of the remaining 90 per cent guessed wrong at some critical point.

2. Need for Accurate Tests

Mistakes in adjusting men and women to their tasks result in an immeasurable waste of human life and productive power, in discontent, suffering, and ruined lives. Any system that would furnish sufficiently accurate tests of ability to make it possible to foretell the outcome of any adjustment of men and jobs would be of almost incalculable value. The absence of such tests is proof of the unscientific character of human adjustments in industry; for, as Herbert Spencer has said, "Prediction is the business of science."

The use of a reliable test of ability would save time in hiring and almost measureless energy in subsequent work. Like all scientific achievements, it would save the exceptional person for exceptional work by enabling the ordinary person to use standardized methods. Only a scientific test can be just, fair, and impersonal, and can give recordable, classifiable facts available anywhere for anyone who wishes to use them.

The search for reliable tests of ability is not a new one. Elaborate experiments in this direction have been made in the civil service. Whatever may be the defects of the various systems of civil service examinations, they at least give, when properly conducted, an impartial standard of placement and promotion. The comparative freedom of such a system from prejudice and favoritism, with its promise of permanence in position and promotion by its impartial judgment of effort, is one of the principal reasons for the attractiveness of civil service and its extremely low turnover.

Psychological Measurement of Ability

Ordinary civil service examinations are too cumbersome for use in industry; they lack flexibility. They usually lay

too much emphasis on memory and literary knowledge. Because they measure information and not intelligence, they afford little knowledge of the possibility of growth. Recognition of these defects has long given rise to a desire to find some method of getting at the content and capacity of the mind, and of actually grading native ability. This is essentially a problem for the psychologists. Personnel science must take the results gathered by psychologists and adapt them to the industrial field. In doing this it adds its own methods and newly discovered facts, and thereby richly repays psychology for whatever it may borrow.

The Old Psychology

Unfortunately, however, when industry first turned to psychology for help it found the latter in a process of rapid change. Only within comparatively recent years were the methods or the material of psychology of value in solving the problems of employment. The older psychology's methods of testing the mind were almost as uncertain and unsatisfactory as the old guessing methods in industry. Until the latter part of the nineteenth century most psychologists worked upon what is known as the "faculty" theory of mental activity. William James describes this theory as follows: ¹

The most natural and consequently the earliest way of unifying the material was, first, to classify it as well as might be, and, secondly, to affiliate the diverse mental modes thus found upon a simple entity, the personal Soul, of which they are taken to be so many facultative manifestations. Now, for instance, the Soul manifests its faculty of Memory, now of Reasoning, now of Volition, or again its Imagination or its Appetite.

While this theory dominated, or that of the allied associa-

¹ William James, *Psychology*, 1902, Vol. I, p. 1.

tionist school which did little more than eliminate the soul and depend upon association to hold these faculties together, there was little that psychology could contribute to practical life. It only catalogued the faculties and tried to find out something about their operation by introspection. Titchener, one of the founders of the new school of psychology, criticizes the old attitude in the following manner:²

So long as mind was looked upon as a substance, a real being, a personal creature, psychology had no more to do than to note down the different powers or faculties or capacities of the mind, as they fell under observation. The list always remained open. Not until mind is regarded as a stream of processes, whose flow is throughout obedient to psychological law, does the problem of analysis become insistent. Besides, this problem can be solved only by help of the experimental method; and the first laboratory of psychology was founded as late as 1879.

It might be thought that personnel work is little interested in dead and buried theories of psychology. But unfortunately personnel workers have been robbing the grave of those theories and using them. The whole idea of character analysis and judgment by asking the applicant what he thinks he is and knows, is based upon just this antiquated theory. We shall find this generally to be true, that so-called common sense is composed of intellectual strata filled with the fossilized theories of dead sciences.³

² E. B. Titchener, *Text-Book of Psychology*, 1910, p. 47.

³ "A statement that rests upon common sense is not likely to be argued; it is taken for granted, as something that needs no discussion. Yet, in theoretical matters, common sense is an unsafe guide. For the common sense of our own generation simply sums up so much of the advanced thought of former generations as the great body of mankind has found acceptable and intelligible. A brilliant speculation of one age may become the common sense of the next; but this does not make it any the less speculation, while in the course of becoming common sense its logical structure has, inevitably, been more or less damaged. Common sense in theoretical matters, is past philosophy; and the philosophy is the more

3 The New Psychology

While the new psychology does not entirely discard introspection and intuition as a means of studying the mind, it lays very much more stress upon objective tests of mental states. This is the method of all other sciences. The chemist does not ask oxygen how it wishes to act, nor does the physicist depend upon the introspection of the falling body to enlighten him as to the laws of gravitation. While the study of the mind has the advantage that the mind's owner can tell something of its operations, it also has the great disadvantage that the owner is not an impartial judge. Therefore the results of introspection at least need checking by the same sort of objective observation used in examining other objects.

The new scientific school looks upon the mind as a function of the brain and nervous system, in much the same way that contraction is a function of muscles and digestion a function of the stomach. The nervous system is always performing this function and thought is therefore continuous, but has expressions, forms, processes, or elements.

Experimental psychology has developed many ways of investigating the mind and the nervous system. It lays much stress upon an accurate and minute knowledge of the brain and nerves and all their activities—upon physiological psychology. It has devised intricate and delicate instruments with which to measure the speed of nerve impulses, the strength and keenness of sensations, the reaction time of nerves, the fatigue of muscles, and similar phenomena. Much of this work is of value in testing human capacities for industrial adjustment. The new psychology has devoted much time to the analysis of human instincts and their expression

vulgarized the farther it has traveled from its course."—E. B. Titchener, *Text-Book of Psychology*, 1910, p. 47.

in human behavior. In so doing it has laid a deep and solid foundation for all social relations. Further light upon this field promises to be shed by the careful studies of the subconscious mind—of dreams, hypnosis, forgetfulness, aversions, etc. In these states, the mind is caught off its guard and reveals much that introspection and report would rather conceal.⁴

Evolution of Mental Tests

The most immediately available results for industry were obtained from the study of animal, child, abnormal, injured, and defective mentalities, the method being to try to analyze the respective strength or capacities of certain mental functions. The study of animal psychology revealed the existence of certain deep-lying mental elements the origin of which antedates the origin of man himself. Such elements will be slow to change and powerful in their influence. The fact that some elements of normal mentality are lacking in abnormal and subnormal minds makes possible the isolation and study of such elements. The effect of blows or other injuries, or certain drugs, creates a similar opportunity to test the effect of the absence of certain mental functions.

The Binet-Simon Tests

The study of subnormal children revealed the material and methods of greatest value in testing industrial ability. In 1904, Binet and Simon, two French psychologists, were appointed upon a commission charged with the education of the feeble-minded children of Paris. Until then there had been no method of grading such children according to their

⁴When Freudian psycho-analysis shall have cast off some of its rather freakish features it will undoubtedly leave behind it a methodology that will be fundamental in analyzing human motives, desires, instincts, and the behavior founded upon them.

mentality and therefore no means of adjusting treatment to their needs. These two scientists sought to develop a series of tests that would make such grading and treatment possible. They set for themselves a standard for such tests, which contained apparently impossible conditions.⁵

A series of tests should be found for each year of childhood, the passing of which could be considered normal and typical for children of just precisely this age. The tests must be relatively uninfluenced by external and chance conditions, especially by school learning, so that the result might bring out as purely as possible the real mental endowment of the child; they must admit of as uniform use as possible in different nations, languages, and grades of culture; they should be easy to carry out, not necessitate laboratory apparatus or instruments of precision, should not exact too much time of the child, should not impose hardship on him or tire him, and yet must possess sufficient accuracy to make possible comparison and checking of the investigations undertaken by different persons; and, finally, they should make it possible to work out a final value for each subject tested that could be deemed a measure of his general intelligence.

It will at once be evident that here is a problem comparable to that which Taylor and Barth attempted in the field of cutting metals. There is at least an equal number of variables, and the human material is more difficult of standardization than metals. The high degree of success attained by these two French scientists in approaching this standard places them among the few who have made great advances in human knowledge. It will also be noticed that the standards set parallel at many points those which the personnel manager is trying to meet. The methods used are

⁵ L. W. Stern, *Psychological Methods of Testing Intelligence*, 1914, pp. 29, 30.

full of suggestions as to those to be followed in establishing standard industrial tests.

Tests Established for Normal Children

The experiments began by testing normal school children. Whenever the children of a certain age passed a test and the next younger ones failed, it was accepted as a standard of attainment for the older age. Diversified tests sought to measure various phases of intelligence, so as to obtain a general standard of ability at each grade.

The tests are of continuously increasing difficulty. They begin with those which are designed to discover the very beginnings of intelligence in the youngest infants and the lowest grades of imbeciles, and which are shared by the lower animals.⁶

The first of the original tests consisted in passing a lighted match before the eyes to ascertain whether attention could be aroused so that the eyes would follow the light. This was followed by placing an object in the hand to test prehension. The subject was then given a block of wood and a block of chocolate to ascertain whether he was capable of distinguishing between food and not food. The tests then gradually grew more difficult through the naming of objects, the comparison of unequal lines and weights, judgments as to conduct, comparison of words, memory of sentences, and finally the original set of thirty closed with one asking the definition of certain abstract terms.

Methods of Applying Tests

The tests were given in succession beginning with the simplest, unless this was evidently not required, until the

⁶ Alf. Binet and Th. Simon, *The Development of Intelligence in Children*, 1916, pp. 45-69, for description of original tests and methods of use; G. M. Whipple, *Manual of Mental and Physical Tests*, 1914, Vols. I and II, for the later developments.

subject failed upon one. In the later revised methods adopted by the original founders, the number of tests were increased until there were approximately five for each year. Then the following instructions were given:⁷

Take for point of departure, the age at which all tests are passed; and beyond this age, count as many fifths of a year as there are tests passed. Example: a child of eight years passes all the tests of six years, 2 of seven years, 3 of eight years, 2 of nine years, one of ten years; he has therefore the level of six years plus the benefit of eight tests, or eight-fifths years, or a year and three-fifths, or more simply, 7.6. . . . But it must be well understood that this fraction is so delicate an appreciation, that it does not merit absolute confidence, because it varies appreciably from one examination to another.

When the tests were completed, it was found that a method had been evolved for the grading of intelligence which produces uniform results everywhere, and which has since been utilized in every civilized country and applied to many savage tribes as well. Since the publication of the first tests by Binet and Simon they have been constantly altered and improved, but the method remains little changed and most of the subsequent tests are based upon those of the original workers.

Grading Rather Than Measurement

It should be understood that tests are not so much measures of intelligence as standards by which to grade individuals with reference to certain intellectual qualities. The original

⁷ Alf. Binet and Th. Simon, *The Development of Intelligence in Children*, 1916, p. 278 *et seq.*

Although the grades are expressed in terms of years it should be always remembered that they only mark differences of degree and that a person assigned a "mental age of three years," for example, does not have the same mental equipment as a normal child of that age. An adult moron is not the mental equivalent of a normal infant.

discoverers were careful to make this clear when they said:⁸

This scale properly speaking does not permit the measure of the intelligence, because intellectual qualities are not superposable, and therefore cannot be measured as linear surfaces are measured, but are on the contrary, a classification, a hierarchy among diverse intelligences; and for the necessities of practice this classification is equivalent to a measure. We shall therefore be able to know, after studying two individuals, if one rises above the other and to how many degrees, if one rises above the average level of other individuals considered as normal, or if he remains below. Understanding the normal progress of intellectual development among normals, we shall be able to determine how many years such an individual is advanced or retarded.

The measurement of intelligence by tests has often been compared to the measurement of temperature by a thermometer. The position of zero and the length of the degrees are fixed arbitrarily in each of the various systems of measuring temperature, but no matter how much thermometers differ as to these features they will agree as to which of two temperatures is the warmest. The comparison would hold good in detail were it not for the fact that mental measurements are not of a single quality or element. They do not measure simply in one dimension, as has been pointed out by some workers in this field, but rather in three, or even more dimensions, simultaneously, and the different dimensions are not always comparable. For practical purposes of personnel work, however, these distinctions need not trouble us.

Definition of Intelligence

The tests aim to discover and grade what is commonly known as general intelligence, or that peculiar combination

⁸ Alf. Binet and Th. Simon, *The Development of Intelligence in Children*, 1916, p. 40.

of abilities that makes the human mind of more value in gaining control of its environment than is the mind of the lower animal, and that gives to the minds of certain individuals greater power over their surroundings than is possessed by others. Many psychologists have tried to define this quality, and they are now reaching an agreement. As industry seeks the same quality, it is well to know how psychologists define it. Jacques Loeb says of the characteristic of brain superiority in man: ⁹

All experiments point to the fact that this overwhelming abundance of associations which even a disabled human brain can form is lacking in animals. One impression may arouse only a very limited number of associations. . . . This small capacity for associations makes the reactions of animals appear machine-like and less intelligent. I think that the greater capacity of the human brain for associations and the greater celerity with which these associations are formed and retained are sufficient to explain why mankind has been able to control nature, while animals remain at its mercy.

William Stern defines intelligence as "a general capacity of an individual consciously to adjust his thinking to new requirements; it is general mental adaptability to new problems and conditions of life." ¹⁰

Binet and Simon describe the characteristic they were seeking in these words: ¹¹

It seems to us that in intelligence there is a fundamental faculty, the alteration or the lack of which is of the utmost importance for practical life. This faculty is judgment, otherwise called good sense, practical sense, initiative, the

⁹ Jacques Loeb, *Comparative Physiology of the Brain*, 1900, p. 286.

¹⁰ L. W. Stern, *Psychological Methods of Testing Intelligence*, 1914, p. 3.

¹¹ Alf. Binet and Th. Simon, *The Development of Intelligence in Children*, 1916, pp. 42, 43.

faculty of adapting oneself to circumstances. To judge well, to comprehend well, to reason well, these are the essential activities of intelligence. A person may be a moron or an imbecile if he is lacking in judgment; but with good judgment he can never be either. Indeed the rest of the intellectual faculties seem of little importance in comparison with judgment. . . . The same remark holds good for the study of memory. At first glance, memory being a psychological phenomenon of capital importance, one would be tempted to give it a very conspicuous part in an examination of intelligence. But memory is distinct from and independent of judgment. One may have good sense and lack memory. The reverse is also common.

William James says: ¹² "The pursuance of future ends and the choice of means for their attainment are thus the mark and criterion of the presence of mentality in a phenomenon."

5 Industrial and Educational Methods Compared

Industry is concerned with the transformation of materials into forms suitable to satisfy human wants. It is the basic means by which man conquers and adjusts himself to his environment. It is therefore evident that the characteristics for which the psychologists are searching are those which it would be of value to industrial management to recognize. Yet the methods of testing for industry, while based upon those for general intelligence, are very different. Industry may still use various methods of experimental psychology to determine the accuracy and acuteness of the senses, reaction time, fatigue rate, and so forth. There is also a place in industrial work for tests of memory and acquired knowledge, and especially of peculiar mental abilities and habits not given great weight in general intelligence tests.¹³

¹² William James, *Psychology*, 1902, Vol. I, p. 8.

¹³ H. C. Link, *Employment Psychology*, 1919, Chap. XII, on place of "general intelligence" in employment work.

Extension of Use to Higher Educational Work

The Binet-Simon tests were first published in 1909 and were translated into English the next year.¹⁴ They were instantly welcomed by scientists everywhere. Within a few years it is doubtful if there was a single civilized country in which the education of subnormal children was not being directed according to grades established by these tests. The value of the scale and tests in grading normal children was quickly recognized. Schools and universities began to use the tests in grading pupils and in adjusting their work.

The step from subnormal to normal children in the field of education was natural and inevitable. Educators had long sought for some more satisfactory method of ascertaining ability and measuring progress than was afforded by examinations and personal observation. In the beginning, much of the work with normal children and adults was for the purpose of testing the tests and improving the methods of using them. But it soon became evident that the information they furnished threw a flood of light upon some hitherto dark corners in methods of teaching.¹⁵

Especially in the field of technical training and engineering education, where other faculties than those of memory and literary expression are of high value, do such tests seem to promise most. "The invention and perfection by experiment

¹⁴ Alf. Binet and Th. Simon, *The Development of Intelligence in Children*, 1916, p. 5.

¹⁵ "The University of Minnesota High School has for three years given mental tests designed to measure general intelligence, to all entering students. Students are assigned to sections on the basis of these examinations. This classification makes possible: (1) the application of classroom technique suited to each section; (2) a rate of progress consistent with the ability of each section; (3) a better quality and a greater quantity of work in the abler sections; (4) a reduction in the number of failures; (5) a keener interest in each section—the slower students experience less discouragement and the faster students, because of keener competition, are less likely to contract habits of idleness and carelessness." —W. S. Miller, *School Review*, Feb. 1920, p. 94.

of objective tests of ability seems to offer the most promising road to progress toward a type of instruction that places less emphasis on information and more on ability to use information intelligently.”¹⁶

The United States Army Tests

Further investigation and experimentation with the tests resulted in the extension of their field to normal adults. Such a scale was applied to millions of soldiers in the United States army during the Great War. Out of the results of that investigation and the trade tests that accompanied it was gained the greatest contribution to the preparation and use of tests in industry.

The tabulation of the results of the application of intelligence tests to millions of men gives a literal cross-section of the intellectual ability of the nation. This cross-section shows the following distribution of the abilities which the tests were able to measure:¹⁷

A. *Very Superior Intelligence.* This grade is earned by only four or five soldiers out of a hundred. The “A” group is composed of men of marked intellectuality. Such men are of high officer type when they are also endowed with leadership and other necessary qualities.

B. *Superior Intelligence.* “B” intelligence is superior, but less exceptional than that represented by “A.” The rating “B” is obtained by eight to ten soldiers out of a hundred. The group contains a good many men of the commissioned officer type and a large amount of non-commissioned officer material.

C+. *High Average Intelligence.* This group includes about fifteen to eighteen per cent of all soldiers and con-

¹⁶C. R. Mann, *A Study of Engineering Education*, Carnegie Foundation for the Advancement of Teaching, 1918, pp. 57, 70 *et passim*.

¹⁷The Personnel System of the United States Army, 1919, Vol. I, pp. 132, 133.

tains a large amount of non-commissioned officer material, with occasionally a man whose leadership and power to command fit him for commissioned rank.

C. Average Intelligence. Includes about twenty-five per cent of soldiers. Excellent private type with a certain amount of fair non-commissioned officer material.

C—. Low Average Intelligence. Includes about twenty per cent. While below average in intelligence, "C—" men are usually good privates and satisfactory in work of routine nature.

D. Inferior Intelligence. Includes about fifteen per cent of soldiers. "D" men are likely to be fair soldiers, but are usually slow in learning and rarely go above the rank of private. They are short on initiative and so require more than the usual amount of supervision. Many of them are illiterate or foreign.

D— and E. Very Inferior Intelligence. This group is divided into two classes (1) "D—" men, who are very inferior in intelligence but are considered fit for regular service; and (2) "E" men, those whose mental inferiority justifies their recommendation for Development Battalion, special service organization, rejection, or discharge.

The immense contrast between "A" and "D—" intelligence is shown by the fact that men of "A" intelligence have the ability to make a superior record in college or university, while "D—" men are of such inferior mentality that they are rarely able to go beyond the third or fourth grade of the elementary school, however long they attend. In fact, most "D—" and "E" men are below the "mental age" of 10 years and at best are on the border-line of mental deficiency. "B" intelligence is capable of making an average record in college, "C+" intelligence cannot do so well, while mentality of the "C" grade is rarely equal to high school graduation.

The original Binet-Simon tests were determined by the fact that those for a given age were passed by 50 per cent of the normal children at that age, with 25 per cent above and 25 per cent below. The accuracy of this method of

selection was proved when the distribution of intelligence in adults, tested by closely analogous methods, showed practically an identical distribution. If these results are plotted they will give the well-known Gaussian curve, so familiar in all fields of science, where the median line contains the greater number and the deviations shade off in symmetrical form from each side.¹⁸

Application of Tests to Industry

Many suggestions for the application of intelligence tests in industry may be drawn from the army work.

The principal use to which this information was put was to see to it that each company or battery had its pro rata share of intelligence; in other words that each had its share of superior men intellectually, of average men, and of inferior men. The information was also utilized as an aid in determining how good a man was at his trade. For example, a carpenter of two years' experience, earning \$30.00 a week before the war and of "B" intelligence would be rated a journeyman, whereas a carpenter of five years' experience, earning \$18.00 a week and of "D" intelligence would be rated an apprentice. The "B" man would undoubtedly learn in 2 years what the "D" man could not learn in five years, hence it would be fair to rate them in terms of their earnings instead of their years of experience.

This idea of balancing the intelligence¹⁹ in units is new to industrial management. Yet it is one that may have much to do with determining efficiency. It is possible that units so balanced would show a greater solidarity, willingness to co-operate, and a smoother operation at many points. It gives

¹⁸ L. W. Stern, *Psychological Methods of Testing Intelligence*, 1914, pp. 43, 44.

¹⁹ *The Personnel System of the United States Army*, 1919, Vol. I, pp. 133, 134.

a general basis for more appropriate adjustment, the great problem in personnel relations.²⁰

The graded difficulty of learning revealed by the intelligence tests is of great value in determining systems of promotion and training. It is one more aid to predicting future development, and such aids are among the most precious assets of science. It would be almost impossible to over-value the ability to predict the success or failure of workmen in various lines of promotion. These tests do not yet make such prediction possible, except within narrow lines and with many reservations. Yet they go further in that direction than anything previously known and they probably point the way to still greater gains in the same direction.²¹

²⁰ "Suppose care was taken to keep the various operative units of an industry well balanced in the sense that each operative unit consists of individuals of proper intelligence for the job. This means shifting the mentally slow from positions involving great judgment, adaptability and mental resourcefulness: it means also removing the mentally alert from work of a dull routine nature, unvarying, tedious, calling in no way for the full exercise of the capacities of an intelligent workman. It is conceivable that such balancing would not only be profitable from the point of view of immediate production, but that a major cause of industrial unrest and discontent would be attacked."—Beardsley Ruml, *Selective Tests in Industry*, *Annals of the American Academy*, Jan. 1919.

²¹ "Those children that ranked 'at age' in the first testing had advanced next year exactly one year, on the average, while the retarded children had advanced only two-thirds of a year, and the advanced children one year and a quarter in the same period."—L. W. Stern, *Psychological Methods of Testing Intelligence*, 1914, p. 69, discussing results of tests of children by Binet-Simon method.

"The measurement of ability to learn may properly be divided into: (1) The measurement of pre-requisites, ground work, or necessary foundations upon which to build; (2) the measurement of accomplishment in itself not essential but which has been attained as a result of an activity which correlates highly with the activity necessary in learning the task in hand, e.g., if there is a high degree of correlation between the ease with which an American can learn Chinese, a measurement of time spent in learning French and facility acquired would give evidence as to the probable success in learning Chinese; (3) the measurement of ability to learn the new tasks by tests which are as nearly as possible samples of operations demanded in the task itself; and (4) the measurement of interest."—T. L. Kelly, *Principles Underlying the Classification of Men*, *Journal of Applied Psychology*, Mar. 1919, p. 65.

(1) Measurement of Concentration

A suggestion growing out of the idea of balancing industrial units according to intelligence, though it should not be used without further investigation may yet prove helpful to all concerned. Many employment managers report that there is a certain type of mind that actually welcomes monotonous work. It may be possible that many of those who are graded below normal in intelligence not only find no discomfort in monotonous work, but on the contrary find the effort demanded by original work painful.²² An experiment by Ebbinghaus, a German investigator, suggests a possible explanation.²³ He made many experiments to ascertain the ability to memorize nonsense syllables, meaningless but pronounceable combinations of letters. Such syllables are supposed to measure the span of attention, or the limit of the power of the mind to hold material without the help of association. The normal mind holds about five or six such syllables, but this capacity usually declines rapidly with lessening intelligence as measured by tests. Some have suggested that this test measures the faculty of rhythm in the human mind and have thought they found an explanation of certain facts in music and prosody in the results the test revealed. May it not be possible that where this span of attention is unable to

²² "Mr. James F. Hartness in his little book 'The Human Factor in Industry' has pointed out that there is a type of mind which is very prevalent in industry that wants nothing but the steady job. The man with that type of mind wants nothing but the one thing to do. If he has nothing else to do but that one thing, and can hold that job for his normal lifetime, he is far happier than if he were given a job which requires thought, initiative and responsibility on his part. I know that is the case because I have individually had experience along that line. In my little force I have two girls of just that type of mind. They are good, steady, industrious workers, and I tried to promote them to jobs requiring a little more initiative and a little more responsibility. They would not have it. They were perfectly satisfied to go ahead and make their \$10 or \$11 a week with their hands, rather than get \$15 a week and use a little more initiative."—R. T. Kent, Bulletin of Taylor Society, Dec. 1917, p. 13.

²³ Psychology, Encyclopedia Britannica.

grasp more than two or three disconnected syllables, each motion on an automatic machine is essentially a new experience and therefore rouses no sense of monotony?²⁴

Such as yet untested suggestions should, of course, not be accepted as a blanket excuse for retaining men and women in monotonous work. There have been many instances of persons of apparently dull intellect, who through the possession of an indomitable will have made great achievements. Any use of intellectual gradations based upon tests, as an excuse for establishing any sort of status in society or industry, would be dangerous. But there is a fruitful field for investigation here that may assist greatly in such an adjustment of personnel elements in industry as will afford greater pleasure, increased production, and much less pain and waste.

(2) Measurement of Trade Ability

A more direct hint of value to industry is the fact revealed by the army tests that there is a hierarchy of ability in trades. The intelligence tests showed that men who were trained engineers ranked highest in the tests—higher even than those from the so-called professions—and that there was a steady gradation down to those who had learned no trade. This at least arouses a strong suspicion that we are here on the track

²⁴ "There are many automatic machines which require an operator with only the most elementary kind of intelligence and attention; and there is a large amount of manual work which involves only the learning of a few simple movements which are continuously repeated in exactly the same way and which, when once acquired, can be performed without the aid of attention. For such work mental defectives are often well adapted. Indeed, they are often better fitted for it than individuals of a higher intelligence because, having very few ideas and very little mental activity, they are unable to perceive the monotony and dullness of their work. They are themselves quite automatic, and can almost wholly lose themselves in the work which they are doing. What better solution of the problem of idiocy and undeveloped mentality can there be, both from an economic and a social standpoint, than to detect such applicants and assign them to work for which they are peculiarly adapted?"—H. C. Link, *Employment Psychology*, 1919, pp. 185, 186.

of a method of determining trade ability, and certainly of a method of determining ability to succeed in a trade. Before tests could be applied generally, economically, and with reliable results in industry, many more experiments and much modification were necessary.²⁵

In the course of adapting tests to the deaf and the blind a technique was developed by which the tests can be given without language, through objects and pictures. These methods were further developed in testing illiterates in the army, and are now ready to be used for similar classes in industry.

Requirements of Trade Tests

When the army was confronted with the vital problem of selecting hundreds of thousands of skilled craftsmen, and when the whole success of the war and the conduct of operations of all kinds depended upon these selections being made swiftly and accurately, there was a choice between two methods:²⁶

One view was that trade tests should be made up of carefully prepared and reasonably checked questions and answers for each trade and graded into three groups, for apprentices, for journeymen, for experts. Moreover such

²⁵ Those who wish to follow more in detail the methods by which tests were developed should consult the following: G. M. Whipple, *Manual of Mental and Physical Tests*, 1915; R. M. Yerkes, *A Point Scale for Measuring Ability*, 1915, and *Army Mental Tests*, 1919; E. L. Thorndike, *Theory of Mental and Social Measurements*, 1904; L. W. Stern, *The Psychological Methods of Testing Intelligence*, 1914; Articles in *Journal of Educational Psychology*, and *Journal of Applied Psychology*.

A further bibliography can be found in Bureau of Education Library Leaflet, No. 2, on *Educational Tests and Measurements*, and in Helen Boardman's *Psychological Tests*, A Bibliography, published by the Bureau of Educational Experiments, 1917.

²⁶ *Personnel System of the United States Army*, 1919, Vol. I, p. 357. The chapter of which this is a part describes the whole process of making the trade tests. The methods used are essentially those which must be used in industry.

questions should be asked by experts or at least tradesmen in the trade, who would be able to gather from the answers given in the test how skilled the applicant was.

The above method, which is regularly employed in industry, was found so unsatisfactory in the army that it was discarded in favor of an entirely different method. Doubtless if the same method had been subjected to the same stern tests in industry that it met in time of war it would long ago have been discarded here also.

The other conception of trade tests emphasized that such sets of questions and answers were of little, or possibly of no use, until they had actually been tried out and it was known that novices, apprentices, journeymen, and experts could be differentiated through their use. And the emphasis was placed, moreover, upon an actual try-out, not upon the opinion of experts as to how good the questions were.²⁷

The method that science employs in dealing with theories is based on the query: Does it agree with the facts? and not, Does it please some authority? At every step the tests are tested, and if they do not meet the standards set they are abandoned.

The standard set for the tests in army work involved three points: "(1) They must differentiate between the various grades of trade skill; (2) they must produce uniform results in various places and in the hands of different examiners; and (3) they must consume, in the giving, a small amount of time, energy and material."²⁸

Preparation of Army Tests

To prepare these tests an intimate job analysis was made in many localities, supplementing the one already made and

²⁷ The Personnel System of the United States Army, 1919, Vol. I, p. 357.

²⁸ *Ibid.*, p. 365.

described.²⁹ From all the information that could be gathered, a list of some 60 to 90 questions was made. These were then tested on a group composed of 20 novices, 20 apprentices, 20 journeymen, and 20 experts. Only those questions were retained which showed by actual tests that they served, not only to distinguish between those who had worked at the trade and those who had not, but also to classify such craftsmen according to their skill. Moreover, the questions had to be so worded "as to bring out easily scored answers. Many of the questions . . . resulted in long and involved answers, and often in a great variety of answers, all approximately correct. Such answers could not be scored by an examiner who was not an expert in the trade."³⁰ But the object of the tests was to save the exceptional man, and so questions had to be devised that could be correctly answered only in a very few words and in not more than two or three ways. These answers could then be printed on the list of questions and scored by anyone capable of reading and writing.

Classification of Trade Skill

Next, if the tests were to indicate degrees of skill it was necessary to have standard classifications of skill. As usual in the field of personnel relations no such standards existed, although their existence had been implied in popular language and acted upon in the regular hit-or-miss style of so-called practical business men for years. Certain crude standard definitions were made for these grades by the government, and these standards will undoubtedly greatly improve in the future, as standards when once set have a way of doing.

The apprentice was said to be a tradesman who, while master of certain aspects of his trade, could not yet be

²⁹ See p. 23.

³⁰ The Personnel System of the United States Army, 1919, Vol. I, p. 364.

entrusted with an important task. The journeyman was a tradesman who could perform practically any job in his trade. The expert could perform quickly and with superior skill any work done by men in his trade.³¹

Before mobilization ceased trade tests had been perfected for 83 of the more essential trades. This work of making the tests, like all original scientific work, is slow and expensive. It was necessary to establish a school to train the makers of tests. Yet when the work was finished the cost had amounted to only about \$1,000 per trade, and the "resulting economies of pay and subsistence of otherwise misplaced soldiers was several times that amount every month; and the still more valuable economy, not measurable in dollars, is found in the resulting facilitation of training, through correct initial placement."

On the results so attained, P. N. Golden, of the Trade Test Division of the War Department says: ³²

One of the things the Committee [on classification of personnel in the army] did was to shoot the bug-a-boo of "the only way to find out is to let the man show what he can do" so full of holes it can be considered practically dead. There are a few occupations to which the above rule applies, but their number is so small that they can be considered almost negligible. Another secret of the Committee's success lay in that they refused to believe that "what a man *knows* is no indication of his ability to hold a job" and they proved their idea was correct in innumerable cases and under many trying conditions.

.....

The main reason the oral tests gave such satisfactory results was because the questions asked were such that the tradesman actually knew the answer, not what he should

³¹ The Personnel System of the United States Army, 1919, Vol. I, pp. 365, 366.

³² P. N. Golden, *American Machinist*, Aug. 1919, Vol. LI, pp. 409-411.

theoretically know. The answers printed in the tests were correct answers which the tradesmen themselves actually gave, not answers given in handbooks, school books or by some technically trained manager or engineer. The questions, moreover, were so carefully worded that their meaning was perfectly clear and the answers printed in the tests were, so far as it was humanly possible to discover, the only correct answers which could be given by tradesmen. The result was that men could be rated by these tests by anybody who could read and put down the scores made in conformity with a set of very simple rules.

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A properly devised oral test can be administered by any man or woman of ordinary intelligence in an employment office in less than ten minutes, and the applicant will, in at least 90 per cent of the cases show, on being put on the job, the degree of ability indicated by the result of his oral trade test.

Performance Tests

The army also made use of numerous forms of performance tests, which consisted largely of miniature or condensed operations of the kind demanded in the trade. In some cases it was possible to use actual operations such as would be required in the trade, and to have the work performed under close observation according to laboratory methods.³⁸ It was found, however, that the results of such tests correlated so closely with those of the oral tests as to be practically a duplication, adding little new information. It may be accepted as a demonstrated fact that oral trade tests have been tested to the point where their value is beyond dispute. The testing to which they have been subjected is definite. The results do not depend upon unrecorded opinions; they can be

³⁸ Personnel System of the United States Army, 1919, Vol. II, Chap. VI, pp. 123-165, gives detailed description of both performance and trade tests and methods of giving, with samples of both forms of tests.

expressed in exact percentages. The tests are demonstrated time-savers in the process of hiring and give a sound basis for infinitely greater savings in the steady process of adjustment, training, transfers, and promotion that goes on in every properly organized industry.³⁷

37) *ability for specific jobs determined by special tests*
Development of Industrial Trade Tests

As industry after industry makes use of tests the standards will be continually improved, and great improvements may be expected in the near future. Many firms are already making practical, continuous experiments. I recently had an opportunity to examine the process by which two large industries having plants in different parts of the country developed tests for use in adjusting employees. Their methods were those which must precede the formation and use of tests if the results are to be satisfactory. The first step was a thorough standardization of all positions. It was found, as might be expected, that although these companies had long led in up-to-date methods, there was no agreement as to names and duties of various occupations. Men doing exactly the same work in different plants were paid different wages and their trades were known by different names. A careful and elaborate job analysis was conducted, in the course of which foremen and others were asked to suggest test questions. These ques-

³⁷ "Standardized trade tests have been producing uniform ratings of ability for the army, ratings that were equivalent in all parts of the United States. If, through the use of tests, such uniformity of evaluation can be gained from place to place, so also can it be gained from month to month. . . . Such standards can be used in specifying definitely the degree of skill required in various positions, and in assuring that employees who are taken on from time to time measure up to this fixed standard. An unchanging scale in terms of which degrees of ability can be stated would also make possible the determination of the sum total ability in the working force of an industry. Such an evaluation of available skill would reduce one of the intangible assets of business to a tangible one, with consequent increase in the significance of all thinking involving this phase of industrial fact."—Beardsley Ruml, Selective Tests and Industry, *Annals of the American Academy*, Jan. 1919, p. 45.

tions were then assembled and tested on employees of known skill. The result was a set of trade questions that are now saving thousands of dollars monthly and will go on saving at an increasing rate for years to come. It should be emphasized that the success of trade tests depends primarily upon the care with which the original work of preparation is done, and that the most expert supervision and greatest care are none too good to be used in establishing the original standards by which all subsequent work will be measured.

National Standard Intelligence Tests

Already there is a beginning of a series of national standard tests. The Teachers' College of Columbia University supplies sets of intelligence tests particularly suited for industrial work.— Though trade organizations are preparing to undertake such work for all their members, for some time to come the final work must be done in each plant.

A most fruitful suggestion as to the establishment of national standards has been made by J. J. Swan, who prepared the trade specifications for the United States Bureau of Labor, to be used in all war work. He says: ³⁵

I would like to propose that in time, and as soon as the United States Employment Service's personnel can be trained up sufficiently, it will be possible to introduce very generally standardized forms of "trade tests" and "ratings" for men, and that the service can then issue a rating card to each man tested, which can be presented to an employer and will serve as an identification and an assurance that the holder thereof has passed a standard examination and test entitling him to a definite rating in a specific trade. A man's rating can be advanced at any time, provided the man applies to the nearest station and successfully passes the

³⁵ J. J. Swan, Army Trade Tests, Circular No. 4, United States Bureau of Education, April 1919, pp. 23, 24.

tests for the advanced rating. In this way each man is encouraged to improve and no hardship is worked on anyone.

This system would be universal in its application and would act to help both the employee and employer by obviating a trial period or misplacement in the assignment. It would give a standing to the bearer of such a card, and an assurance to an employer that the man has demonstrated his ability to be classed under the trade and rating stated on his card. Being universal and an actual identification, there would be no necessity to make a man wait until his record was investigated, or to take him on at a lower rating and try him out. All this presupposes the employment service being brought up to a high standard, and a willing and close cooperation between the various trade-unions, workers and employers in each community and generally. Already certain unions have or are organizing trade tests to classify members. Some manufacturers have similar plans due to a feeling that they must determine the ability of the men they employ in their own way.

Here we have a glimpse of the possibility of placing the whole matter of the relations of all personnel elements in industry upon a truly scientific basis, with wide possibilities for increased production, more harmonious relations, and greater happiness to all concerned.

Future Developments

It must not be supposed that the use of tests in industry has been so perfected in all its phases as to leave nothing to be done except to apply them indiscriminately. There are some fields in which no tests have yet been found satisfactory. This is true in the work of choosing higher executives, although considerable work of an experimental character has been done in this field. But no one has yet made any accurate job analysis of such positions to determine what qualifications are needed. The whole work of management has been so unstandardized, so imperfect in its results, so uncertain in

its methods, and so permeated with the spirit of trial and error that little can be accomplished in this direction until the business of management becomes more scientific.³⁸

The technique of preparing and making the tests is now going through a period of rapid evolution, not only directly in industry, but through researches being made by hundreds of psychologists in every industrial nation. These scientists are taking the material that was gathered in testing millions in the various armies and hundreds of thousands in industry, and subjecting it to careful analysis. Out of this study is coming new knowledge of the human mind, new and better methods of making and applying tests, and more accurate systems of testing the results.

There is every reason to believe that in this field lies the greatest probability of rapid progress during the next few years; and that the industry or the nation that first makes use of this knowledge will find its productive capacity so greatly increased, and its calculations rendered so much more accurate, as to give it an important advantage in a competitive world.

³⁸ H. C. Link, *Employment Psychology*, 1919, pp. 190, 191.

CHAPTER VII

INTRODUCING THE NEW EMPLOYEE

Group Instinct

The group instinct is far older than man. It built all the endless forms of animal association—the pack, flock, covey, and herd. This gregariousness is the foundation of all human society. For many thousands of years it found expression in the tribe and clan, then in city, nation, church, club, school, party, and any other group into which human beings naturally gather. Always such groups turn against the outsider. The pack hunts together, and the stranger is the enemy. For many centuries this was a condition of survival. Only those in whom the instinct was so deeply implanted as to command instant and unconscious response survived to hand on a strengthened instinct to their descendants.

Such a group, as soon as it becomes fixed, develops some sort of initiation ceremonies to mark the introduction of the outsider to a place in the inner circle. In savage tribes, where the group instinct must be preserved as a condition of survival, such ceremonies are apt to be elaborate and to constitute the most important educational and religious customs of the tribe. Even the children of the tribe are not accepted until after such initiation.¹ Remnants of this practice remain in naturalization, in first communion, and in all the formulas of initiation into secret societies.

When all formality of initiation has disappeared, the

¹W. I. Thomas, *Source Book for Social Origins*, 1909, pp. 216-267; G. S. Hall, *Adolescence*, 1907, Vol. II, Chap. XIII.

instinct still insists upon expression in the hazing that always greets the entering member of a new group. Even such a common custom as the introduction by a mutual friend, together with the subsequent handshaking and mutual good wishes, is a vestige of the old tribal initiation of the stranger into a new group.

Significance of the Group Instinct

Modern industry as a comparatively new form of group should make use of this instinct of gregariousness, which is one of the foundations of that esprit de corps so much valued and so seldom found. In its relation to the newcomer, however, the instinct has its drawbacks. He brings with him a suspicion of the new and untried, reinforced by that instinct of secretiveness which has always been a defense of the individual against possible hostility.²

The newcomer into an industry meets the instinct of gregariousness and unconscious hostility just at the moment when all his other difficulties are the greatest. The first few weeks are a time of learning new duties, adjustment to new relations, understanding of new customs. There is an old saying based on this racial instinct, "First impressions are most lasting." It is therefore doubly necessary that these first impressions should not leave the new employee with a sense of hostility, suspicion, and discomfort. A bad beginning is a costly thing to remedy.

The Law of Learning

An unsigned article in the *Scientific American* of January 11, 1919, sets forth the situation confronting the new worker in these words:

² William James, *Psychology*, 1902, Vol. II, pp. 432-434.

Every man in every occupation makes mistakes at the start. This is nothing to his discredit, provided he has profited by them and rearranges his mode of conduct so as to prevent the same mistake twice.

The routine of new work necessitates the formation of new habits. The process of habit formation is as essentially physiological as any other function of our material bodies. It has its basis in the most highly organized mechanism of man—the nervous system. . . .

Nervous tissue is very plastic and readily yields to repeated stimulation. But from the time we start to form a habit until it is absolutely part and parcel of our body, there are dangerous pitfalls for the individual. The most critical time is when we must judge whether or not we can trust the lower nerve centers to carry out our wish. Too much new stimulus forces us to crowd unripe habits into the subordinate centers of control. What happens? They function inefficiently, we make mistakes, call these habits back to consciousness, confusion results and we get discouraged. . . .

If an employee can cross this plateau of uncertainty in forming new habits, the battle is half won. If an employer can understand the stress and strain of this period for the employee, he will often develop a valuable man instead of losing his temper and firing him.

The beginning period is one of instruction, not only in new methods of working, but in countless other little things that irritate and disturb. There is a peculiar law of learning partially explained in the above quotation that gives rise to a critical period shortly after the learning has begun. It has been discovered that in learning anything, from skating to French, from typewriting to swimming, the process usually moves through three stages. There is first a period of comparatively rapid improvement. Then comes a time of very slight gain, followed by another period of improvement which is usually somewhat slower than the first and continues longer. The second stage, known to educators as the "plateau of learning" because, when the process is plotted it appears as

an almost level plateau between two upward slopes, is always a period of discouragement. In industry it is one of the periods of most rapid turnover in the whole employment relation. Every student of the subject of turnover agrees that the proportion of changes is highest during the first few months after hiring.³

If this period is safely passed, if the new employee is initiated into the group and the new adjustments made, then the connection will not be broken without some stronger reason than would cause a separation in the earlier uncertain months.

Effect of Incentives on Rate of Learning

There seems to be a growing consensus of opinion among educators and psychologists (the latter basing their conclusions largely upon experiments with animals) that the existence of the plateau of learning is largely due to lack of proper application of incentives. If the incentive is changed or increased at the critical points, the upward progress towards mastery continues in a fairly regular curve. It is just this control over incentives that furnishes the management with the power to make the breaking-in period one of steadily increasing ability and interest.⁴

³ S. H. Slichter, *Turnover of Factory Labor*, 1919, pp. 44-57.

⁴ "These places—where the curve remains horizontal, showing neither gain nor loss—need explanation. It is probable that their explanation is to be found in the failure to control the incentives. No such plateaux or resting places are to be found in the curves illustrating the motor acquisitions of animals. When an animal has to work or remain hungry; to make a correct response at an alley or be punished, etc., the incentive may be said to remain at a maximum. The situation is clearly different when human beings are forced to learn to typewrite. The act is a very complex one and the stimuli leading to action are not compelling. If a man's food (reactions to sex stimuli, shelter, etc.) were dependent upon acquiring skill in a certain line—conditions which we can now control in the animal—such resting places and plateaux would in all probability disappear from his learning curves."—J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, p. 202.

Discomfort During Adjustment Period

The process of making new adjustments is in many ways positively painful. The rearrangement of nervous tissue consequent upon the establishment of new habits and new relations is in itself a cause of fatigue and discomfort. The fact that the new employee does not give this explanation of his discontent and is wholly unconscious of the cause only shows how deep below the level of consciousness these instincts lie buried. He acts upon them so regularly and so frequently that their existence is proved. Because the instinct is too deep to rise into consciousness it is difficult to change.

Facilitating Adjustment

Adjustment to the new conditions is greatly facilitated by proper employment methods. If interviewing and job analysis have been well done, the first degree of the initiation has been completed. From the moment the decision is made to hire the new worker, the idea of permanence must be maintained. Such an attitude should underlie every change during the preliminary period. Every step should be taken on the supposition that the new employee will stay and grow with the industry. Suggestion is a powerful force, and its use at this time and in this manner establishes a frame of mind that will be helpful in all subsequent work.

Matters to be Explained

Every possibility of misunderstanding as to the character and duties of the job should now be cleared away. There should be an exact understanding as to wages, and the period, if any, over which only a preliminary rate will be paid. The possibilities of promotion should be explained. The firm without a systematic promotion policy based on a job analysis is here at a disadvantage. It cannot well plan out a line of promotion such as makes for permanence. The discussion

of promotion gives an opportunity to get a line on the ambitions of the new worker. If his connection with the firm can be planned so as to further those ambitions, then his permanent, enthusiastic support is assured. The employment department should assist in planning the educational work necessary to attain the next step in promotion. If the new worker begins with his eye on a better position within the concern and a plan by which to attain it already in his mind, the attractions of outside positions will lose much of their appeal. We are all profoundly influenced by things due to happen in the near future. Employees in the civil service endure low wages and many other disagreeable features because they are offered opportunities for promotion based on definite and clearly understood improvements in ability, or on length of service.

The methods of initiation just described arouse and develop the creative and other instincts which are the only sound foundation of industrial solidarity. The new worker is made to feel himself a sharer in the traditions of the new group. Every college man knows the value of this in rousing college spirit, which is closely akin to industrial esprit de corps.

Make the policies of the firm clear to the new employee. Make it plain that he is to help form and maintain them in the future. If the firm has no established policies, if promotion is uncertain and based on opportunism, then it is actually following a policy most likely to encourage change and indifference on the part of its working force. If the concern has a standard of workmanship, salesmanship, safety prevention, sanitation, wages, labor relations, or of anything else, it should be printed as a part of a book containing all rules which an employee should know.⁵

⁵ S. H. Slichter, *Turnover of Factory Labor*, 1919, p. 329. National

Book of Rules and Policies

Such a book, once thought to be of no possible importance in employment relations save as a warning of things forbidden, is coming more and more to be recognized as one of those "little things" that may prove big stumbling blocks or very helpful foundation-stones upon which to build. Some firms take the trouble to have the name of the new employee typed upon the front of the book before it is handed to him. Others include blank pages in the back for memoranda, wage tables, or shop information that is most apt to be needed in the beginning. Such a booklet might well contain a short history of the firm and the place that it fills in the industrial world. It might well explain the source of the raw material used and the principal markets for the finished product. It should certainly tell of any notable achievements in the way of size and quality of product; but the subject of quantity of product per employee will not always bear such conspicuous presentation, especially if it is so represented as to suggest immediate emulation.

Preparation of the Booklet

The preparation of this booklet calls for the help of the advertising department. The best advertisement writers are well aware of the value of trade policies and traditions in a sales campaign. They often spend weeks in studying the history and operations of a firm in order the better to present

Association of Corporation Schools, Bulletin Jan. 1920, contains a study of various such books issued by leading firms, with discussion of their merits. It is noted that, "one company puts itself on record as distinctly opposed to a policy of endeavoring to reach new employees by a 'book of rules' method. This company undertakes to form an intimate and personal contact with its new employees and to give them personally such preliminary instruction as they may need. They are accompanied by a representative of the employment department to the department in which they expect to work and personally introduced to the foreman whose duty it is to give the new man such instruction as may be necessary."

such policies to the public. There is almost no limit to the money spent in preparing the copy, planning the layout, and generally making attractive the pamphlets designed to gain the favor of the customers. It is just as important to a firm to sell its policies to a new worker in exchange for his good-will as it is to secure the similar good-will of many customers. The idea that should determine every step in the preparation of such a booklet is to sell the firm to the new employee so that it will stay sold.

Steps in Initiation

Some mechanical steps in the initiation, while they are not apt to be overlooked, often lack systematization. Each worker must be equipped with an identification badge, clock card, tool check, locker keys, etc. These he should receive from one place, with instructions for their use. He should give a receipt for them and know to whom he is responsible for their loss.

The object of any welfare work and any special privileges of the employees should be made clear. If medical care, first aid, hospital, nurse, loans, restaurant, or other services are supplied the new employee should be told exactly how to avail himself of them. In making known the benefits of these policies hostility is easily aroused. If they are described as favors of the management, furnished with the desire to patronize the worker, his instinct of self-respect will be so antagonized as to offset any good-will the prospective favors might have brought.

Some firms maintain benefit associations, membership in which is compulsory. The advisability of such compulsory favors is doubtful, but if they are a part of the firm's policy they should be thoroughly explained when the new member is given his card.

Even with the greatest care, many new habits must be

formed and new things found out unaided. So it is well worth while to explain such apparently small things as the location of exits, fire alarms and apparatus, tool-, stock-, and lunch-rooms, and all conveniences, making the newcomer as familiar with his surroundings as possible. Every new situation requires a new adjustment. Every request for information is apt to be accompanied by a slight feeling of discomfort and embarrassment. The cumulative effect of such things causes a large percentage of workers to quit their jobs before they have ever become a part of the new group.

There should be an early introduction to the "safety first" movement, with an explanation of the methods used in the plant to secure the co-operation of all in preventing accidents. There should be standard instructions to each foreman to give warning against any special hazards.⁶ It should not be forgotten that the newness of the employee is in itself a prolific cause of accidents.⁷

Introduction During Instruction Period

The greatest opportunity for proper introduction into the new group comes with the work of instruction.⁸ Helping the employee to learn the new job brings immediate, tangible results. If properly done it lessens fatigue, increases earnings, shortens the period of low pay and mental discomfort, and gives exceptional opportunity to win his confidence and initiate him into the policies of the firm.

One of the largest single contributing forces to labor turnover is the willing quitting of the worker because he does not know his work and is therefore in danger of

⁶ Proceedings Employment Managers Conference, Boston, May, 1916, Bureau of Labor Statistics, Bulletin No. 202, pp. 36, 37.

⁷ S. H. Slichter, *Turnover of Factory Labor*, 1919, pp. 137-140.

⁸ *Ibid.*, pp. 137-140.

being fired. Rather than wait for the time to come when the "boss" shall discover his ignorance and consequent poor workmanship, the worker quits, knowing he stands a better chance of employment elsewhere by this means than were he to be discharged.⁹

If the plant uses time and motion study, an introductory training is required to explain and adjust the workers one by one to the new methods before they have acquired bad habits. Thorough instruction at the beginning discovers and removes incompetence, by training or discharge, before the new employee has had time extensively to damage materials. The work of testing the selection of employees is done during the instruction period. Such work requires especially trained foremen or teachers. The methods of organizing and conducting training departments and vestibule schools belong to a later chapter.

Outside and Home Influences

Once the worker has really entered the industrial group, arrangements should be made for a visit to the home by the nurse or a representative of the employment department. A warning should be sounded however against the dangers in connection with such visits. Social workers tell a story, the age and frequent repetition of which prove its value as an accurate illustration.

My Lady Bountiful, in a spasm of democratic condescension, invited the little daughter of a protégé to visit her luxurious home. The little girl opened the conversation with, "Does your husband drink?"

"What?"

"Does he save his money?" continued the little visitor.

⁹ H. N. Clarke, Breaking in the New Workers, *Industrial Management*, June, 1919, p. 496.

"What do you mean? You are insulting. How dare you ask such questions!" exploded my Lady Bountiful.

"Well," sobbed the little girl, "my mamma told me to talk like a lady, and all the ladies who visit us ask those questions."

Questions that invade privacy and antagonize the instincts of self-respect, natural secretiveness, and home sanctity are the worst sort of introduction to the plant group. On the other hand, if the firm or the industrial group has any privileges to offer the family, any social organizations, purchasing advantages, insurance work, or other features that interest the non-working members of the family, these should be explained in a straightforward, businesslike manner, trusting to their influence to unite the parental and home-making instincts with those of the factory group.

CHAPTER VIII

INTERESTING LABOR IN INDUSTRY

The Worker's Loss of Interest

The worker's loss of interest in his work is an individual and social tragedy. After the disappearance of chattel slavery and serfdom the wage system depended, as a final resort, upon the whip of hunger to drive laborers to work. When the employer ceased to be the master craftsman and depended upon possession alone to hold his position of industrial manager, leadership in industry and the personal relations based upon leadership lost their hold upon the mass of workers. Specialization in both work and management, with the subdivisions of the machine process, took away that share in the planning and that vision of the finished product which is the foundation of the spirit of craftsmanship and individual initiative.

Dangers of Indifference

So long as an army of unemployed made it possible to hold the threat of discharge above the worker and to drive him unwillingly to work, this loss of interest was not entirely fatal to industry. Nevertheless, this absence of labor's interest in industry has been one of the greatest obstacles to efficiency with regard to quantity and far more so with reference to quality. With even a momentary disappearance of the army of unemployed the problem became one of the very continuance of industry.

The war emergency, and even more the reconstruction period, brought a recognition to our entire civilization of the

threat which lies in this situation. We are seeing that it threatens the paralysis of industry, the destruction of skill, and the disruption of society. All over the world there is a sudden awakening to the measureless value of having the body of producers interested in production and the product.

Value of Industrial Good-will

Today we are being forced by expensive and painful experience to realize the full truth of John R. Commons' statement that:¹

Industrial goodwill is a valuable asset like commercial goodwill and good credit, and becomes so, more and more, in proportion as laborers acquire more liberty, power, intelligence and more inclination to assert their liberties. It too is valuable because it brings larger profits and lifts the employer somewhat above the level of competing employers by giving him a more productive labor force than theirs in proportion to the wages paid. And this larger profit reflects itself in the larger value of stocks and bonds, the higher capitalization of the going business. . . .

But goodwill is fragile as well as intangible. It is not merely past reputation, it requires continuous upkeep through continuous repetition of service. It breaks down easily by deterioration, for it is built up on the most fragile of assets, the freedom of the will of patrons or workers.

The absence of this industrial good-will, of a willingness to produce, of interest in the work, is the cause of the much complained about restriction of production by labor. It is the reason for "ca' canny," for objections to machinery, for limitation of output, for disregard of workmanship. These effects are natural and almost inevitable reactions from defects in management. A leader who fails to lead always blames

¹ J. R. Commons, *Industrial Goodwill*, 1919, p. 26.

his followers. If labor refuses to give good-will there is no way to force its surrender.

Reasons for Absence of Good-will

Since we are dealing here with "wills," either good or bad, it is manifest that we must once more seek a solution in psychology. All personnel relations are psychical relations. Much of successful management is based upon a knowledge of psychology and most of the failures are due to ignorance of the same subject.

Efficiency in transacting business requires that one observe, learn, remember, think, form habits, exercise will power, influence the actions of others, etc. In order to have skill in influencing men one must have knowledge of the mental processes, the predispositions, and qualities of character which determine the course of their thinking, feeling and acting. Psychology is the science which gives an understanding of these things.²

What creates the desire to work? What blocks it? How can the desire be awakened? How can the awakened desire be satisfied through the action of the industrial group? These are the questions that arise when we analyze the reasons for the absence of good-will in and towards industry in those who do most of the work.

Instinctive Desire to Work

The moment we examine the nature of man we find that the desire to work, instead of being something artificial and requiring cultivation, is a deep, inbred instinct that is extremely difficult to suppress. The instinct of gregariousness, also, is one which gives great pleasure through its satisfaction. It is the foundation of nearly all human associations

²G. R. Eastman, *Psychology and Business Efficiency*, 1916, p. 12.

through which pleasure is sought. Industry today, if its capacities were properly utilized, offers a greater opportunity for the use of that instinct than any method of production man has yet discovered. That the gratification of instinct is, in itself, not only useful and necessary to life, but one of the most fruitful sources of pleasure, is a fact whose full importance industrial management has not yet realized.

In this connection John A. Hobson, the political economist, remarks:³

In examining these organic activities lying at the basis of human industry, we shall light at the outset upon one fact of extreme significance, viz., that to each of these organically useful efforts Nature has attached some definite physical or psycho-physical enjoyment. Hunting, fighting, mating, the care and protection of the young, indeed all actions which possess what is called "survival value" or biological utility, are endowed with a pleasure bonus as a reward for their performance. Nature endows most organically useful efforts with concurrent enjoyment.

To whatever source then we trace the origins of industry, to the use of weapons, snares and other male apparatus for the fight and hunt, to the institution of play, imitation and adornment as modes of self-expression and pride, or to the more distinctively utilitarian work of women and slaves around the home, we find play or pleasure mingled with the work.

Pleasure Through Gratification of Instincts

If we are to discover the methods by which once more to unite pleasure with work, we must analyze the means by which these two became separated. We must know the elements which afford gratification in the process of production. One of the most important of these elements is the joy of planning things to be created. This involves initiative, invention, crea-

³J. A. Hobson, *Work and Wealth*, 1914, p. 21.

tion. It is part of the joy of adventure and discovery. Another element of gratification comes from the chance to grow along with the work, to improve in ability and in social well-being as expressed today in income. Another source of joy comes from the vision of the completed work while it is still in process and from the full consciousness of the relation of the worker to that product. These are the elements that have given joy to workmanship in every stage of the history of the race. They were all most clearly in evidence in the great craftsmanship period of the Middle Ages, when the handiwork of man reached a perfection it has never since attained. The characteristics of truly artistic work are that it is the most perfect, the most pleasurable, and the most universally profitable form of human labor.

One by one these most valuable elements of human industry have been destroyed, until, as Helen Marot, observes: ⁴

The whole industrial arrangement is carried on without the force of productive intention; it is carried forward against a disinclination to produce. . . . Industry was shorn of adventure for the common man. Adventure in industrial enterprise is the business man's great monopoly. His impetus is not due to his desire to create wealth but to exploit it, and he secures its creation by "paying men off." Commonly he is peevishly expectant that those he pays off will have a creative intention toward the work he pays them to do, although in the scheme of industry which he supports the opportunity provided for such intention is negligible. An efficiency engineer estimated that there is a loss of wealth of some fifty per cent, due to the inability of the business man to appraise the creative possibilities in industry.

Need of Restoring Pleasure in Production

The biggest problem of personnel relations in industry is the restoration of the elements of pleasure in production. The

⁴Helen Marot, *Creative Impulse in Industry*, 1918, p. 15. Italics in original.

really far-sighted managers of industry are realizing that such restoration will do more to improve quality and increase quantity in production than any other single thing. They are also seeing that the attempt to suppress the instinct of craftsmanship and to steal away its advantages from the mass of the workers for the benefit of a few is the most wasteful and destructive blow ever struck at social well-being.⁵ They are realizing with A. Lincoln Filene, the great Boston merchant, that:⁶

Management has sometimes lost sight of the goal which it has in common with labor. It has been blinded perhaps by a narrow point of view, a rigid devotion to rule of thumb, and indifference to the greatest factor in production—the human factor. Income without satisfaction in work means labor instability, unrest and lowered output. And satisfaction in work is hardly possible without recognition by management of the human elements involved. Like all other human beings the worker is a bundle of instincts. He wants to create, to possess, to gain power, to have his work and merit properly recognized, to play, to protect himself and his own. He wants to learn new things, to vary his occupa-

⁵“Every employer knows that he would not for long be prosperous if he repressed or had repressed every desire to put himself into his business. He does not care how long he works if only he can have the satisfaction of seeing his desires bear fruit. The workingman has exactly the same desires, and if they cannot find expression in making his job better, they will break out in some other form. The energy and brains that might as well go into the business for the betterment of all may find a destructive outlet inside or outside the plant. The whole movement for democracy throughout the world is only an effort to express desires—desires that every one of us has in some form or other. Directors of industry have two courses before them: they can fight the desire of the workingman for recognition and representation on an equal plane as a component part of industry, or they can all combine to lurch their desires in double harness and put into business the will and brain of every individual—for every individual has a will and brain even if long disuse makes him act as if he had none.”—W. R. Basset, *When the Workmen Help You Manage*, 1919, p. 24.

⁶A. L. Filene, treasurer and general manager of William Filene Sons Co., *The Key to Successful Industrial Management*, *Annals of the American Academy*, Sept. 1919, p. 9.

tion so that it does not get on his nerves. He wants the satisfactions which make life worth living.

Unless industry can be so transformed as to gratify these instincts, then industry and the civilization built upon it will break down and disappear.

Methods of Arousing Interest

Because scientific personnel relations are bringing about such a transformation, they offer the greatest possibility of meeting this problem. They propose an adjustment of the worker according to interests and abilities in the midst of helpful surroundings. They establish institutions to give full outlet for, and gratification of, his desires for planning and direction. They offer an opportunity for him to grow with his work and to share in its prosperity. This is the only basis for good-will between the employee and the industrial process.

Educational Work

The first step to this end is comparatively simple and somewhat superficial. The worker must be given a full understanding, not only of the great industrial processes of which he is a part, but of the ends toward which that industry is tending and of his share in determining that development. Through such familiar methods as lectures, moving pictures, shop organs, trade journals, technical books and periodicals, and especially by proper education both in the schools and the shops, the theoretical foundation of craftsmanship may be laid. This educational work should give the laborer a knowledge of industry as a whole. He must be familiar with its history and the mechanical and personal changes that it has undergone. Upon this fascinating story the labor movements of the world rest for their arguments. Labor journals and

all the literature of the working-class movement are filled with industrial history.

General industrial history should be related to the history of the special industry in which the worker is engaged and integrated with that of the particular firm where he is working. He accordingly sees his direct relation to great world processes. The history of the firm is one in which the worker is going to write a part, and he wishes to know what others have done and in what direction the whole, of which he is a part, is moving. Such a history should explain the firm policies. If these have not been formulated in shape for statement, the discovery of that fact uncovers a defect in management which should be changed.

Bring out the source of materials and the destination of the product. Tell the story of costs, sales, methods of marketing, and mechanical transformations. Changes in trade practice and possibilities of improvements finally unite each job to the entire process, if a thorough job analysis has made the information available. If time and motion studies have been made, here is a chance to show the latest standards attained in certain typical jobs and to secure the co-operation of the worker in raising these standards, which he will then see as stages in a long process. He will feel himself as an important link in that process, and will wish his contribution to be worthy of all the others who have worked and will work with him in an endless historical line.⁷

⁷ "Motion study makes all activity interesting. . . . Motion study consists of analyzing an activity into its smallest possible elements and from the results synthesizing a method of performing the activity that shall be more efficient. . . . The process of motion study is such as to interest the worker. . . . Our methods of making motion study are by the micro-motion, simultaneous motion, cycle chart, and chronocyclegraph methods. All make it imperative that the worker shall understand what is being done and why, and make it most profitable to everyone that the worker shall be able, as well as willing, to help in the work of obtaining methods of least waste by means of motion study."—F. B. Gilbreth, *Applied Motion Study*, 1917, pp. 202, 203.

Selling the House Policies

This method of arousing interest is the one which modern advertising has found most valuable also in interesting consumers. All good advertising writers now insist upon the necessity of thorough familiarity with all the broader relations of the firm, its history, policies, and methods of work, as a preliminary to presenting its products to the public. The salesman is drilled in these things, and they are the foundation of selling slogans.

Fred H. Colvin, assistant editor of the *American Machinist*, has noted that:

Every progressive concern goes to considerable expense and uses great care to arouse enthusiasm in salesmen regarding the merits of their product. Every salesman can do better work with a firm conviction that the product he sells has many points of superiority over rival products. Yet few firms pay any attention as to whether the men and women who make the product even know what it is for. Is it not reasonable to suppose that if the workers can be enthused over the product, perhaps by the same or by entirely different methods than are used for the salesmen, that they will try to make it even better, or at least to maintain its quality? ⁸

Subsequent Value of Explanatory Work

Such an educational explanation should, of course, precede the installation of any new method of planning or routing work, or any change in shop organization. Without this introduction such plans will find hard running in the factory. But if they have been preceded by thorough instruction concerning the chain of processes in the plant and the interdependence of the various departments upon one another, the road will be much smoother.

⁸ F. H. Colvin, *Labor Turnover, Loyalty and Output*, 1919, p. 13.

This method offers an opportunity for the use of executives as teachers and lecturers, and for the development of talent for such work within the force. A live advertising department can help in teaching the technique of presenting facts. This, in turn, will also help the advertising department. Dull commonplace presentations of facts to employees are no more effectual in arousing interest than are similar methods in reaching and holding customers. Yet firms that will spend hundreds of thousands of dollars to catch the attention and hold the good-will of constantly changing customers, will begrudge a few cents spent to secure the interest and good-will of the men and women whose life work is bound up in the plant and who have it in their power to make or break the firm.

Integrating the Worker with Industry

Nevertheless this explanatory and educational work, no matter how well done, will be largely futile if it is left to stand alone. It must be looked upon as merely introductory, requiring a follow-up like the advertising designed to bring inquiries. It is all preparatory to the real work of actually integrating the worker with the industry, of putting substance into the selling talk. To stop after telling the employee the story of the process of which he is a part, only to preach to him about his solidarity with the industry, is but to tantalize and aggravate his instinctive desire to share in that process.

This is a fact which every organizer of revolt among the workers understands full well, and is the reason why he always emphasizes industrial history. One fundamental problem of the labor movement which cannot be disregarded, is that of the restoration to the mass of workers of that common sharing in the destiny and direction of the industry which is the foundation of craftsmanship.

Restoring Power to Gratify Instincts

The problem of good-will in industry is the problem of restoring to the productive process the power to gratify the instincts of gregariousness, craftsmanship, and adventure. The real leaders in industrial management are everywhere realizing that industrial progress depends upon the elimination from industry of the elements that are destructive to these instincts.

One of the most easily discernible of these elements is that of monotony.

There is nothing so destructive of happiness and contentment as the deadly daily monotony of uninteresting and uninspiring work. How to make the daily work interesting and inspiring to the workman is the really great problem of the organization of industry. To organize a factory or department from the standpoint of greatest efficiency as a purely productive undertaking is one thing; while at the same time to meet the spiritual and mental needs of the workers it becomes a very different proposition, but, nevertheless, this is the vital part of the problem. Purely manual work requiring no play of intellect can under no circumstances appeal to the interest of the workman. He must feel an interest both in the method and the result; he must find exercise and play for his mind and imagination. Many men of independent power work because they like to work, never realizing that the reason they appear more industrious and efficient than some others is that they have the privilege of choosing the work that interests them, while, at the same time, it may not have occurred to them to give any thought to the question as to whether or not the work of the subordinates is made as interesting and inspiring as possible.⁹

The problem of monotonous work, as we have already seen, like nearly all problems concerned with so complex a

⁹E. G. Rust, *Centralization and Decentralization in Management*, *Annals of the American Academy*, Sept. 1919, p. 102.

thing as industry, is not one permitting a single solution. Proper selection helps to assign it to those to whom the monotony is less of a burden. Proper job analysis will often find a way to supplant it with machinery. Adequate training systems may make of other such positions stepping-stones to less monotonous work. When nothing else offers, such work may be distributed and mixed with more interesting work.

Any work grows monotonous if it offers no opportunity for planning, no view beyond the day's task, no relation to bigger and less monotonous facts. All work becomes alive and vital when it engages the worker's initiative and offers a field for growth in both the task and the worker.

Disappearance of Initiative Among Workmen

At one time the American worker, more than almost any other contemporary laborer, was intensely interested in his work and in methods of improving it. This was the time when American working men were granted more patents per capita than any national body of workers before or since. That the number of patents taken out by wage-earners has greatly declined is due in part to the greater complexity of modern industry. Many inventions are now made through the work of highly skilled specialists in research laboratories. But the multiplicity and omnipresence of machinery should result in a far larger number of small but valuable improvements. These are not appearing. The worker does not understand the principles back of the machine he uses. He does not comprehend its full purpose. Most important of all, he lacks the interest in improvements that would not let the mind of the worker of a former day rest until he had seen the improvement his mind had conceived take form under his hand.¹⁰

¹⁰ "A second and greater misapprehension on the part of those who

Managers have noticed this disappearance of initiative and have sought to arouse it by such methods as suggestion boxes, bonuses, and prizes. These have their value and their place, but they are in the nature of stimulants and poultices applied to an organic disease. As Helen Marot has pointed out,¹¹ "The doing of tasks in factories for the sake of rewards, gives the workers experience in winning rewards. As they are interested only in the reward, they carry away no desire or interest in the work experience."

A Deficiency of the Taylor System

The worker's interest, if it is to run throughout the process, must be enlisted in the beginning. He must share in the planning of each step in the work. This sounds impossible to the old-fashioned manager. It is coming to be seen as the easiest and most profitable manner of managing industry. Scientific management—the Taylor system—began by taking from the worker all share in the planning. The system

would do away with democracy is concerning the mechanism of progress. Progress is largely the product of invention, large and small. It is thought that centralization will re-enforce discovery and that it will rapidly spread new ideas. It must be admitted that the opportunities of those high in authority are so great that when it comes to matters especially in their charge they sometimes make more improvements than all others. Frequently no one else is in a position fully to understand the situation. But when it comes to developments radically new, it is more apt to be the other way. Those high in authority under an old system are more or less dubious about change. Furthermore, they are numerically weak, and, having little special advantage, the chances are not one in ten thousand that they rather than some person having no authority in the matter, will hit upon the fruitful idea. Thus inventions have always come from the most unexpected quarters, and the greatest of world institutions have had, in their beginnings, to fight the persecutions of those in authority. Originating power is widely scattered, no one knows where. An invention, when it comes, is, in its very nature, a surprise. The only way to gather the full fruits of man's tendency to progress is to allow the greatest possible number to pursue their own ideas, and then trust that the worthy innovation will fight its way through to recognition."—Horace B. Drury, *Democracy as a Factor in Industrial Efficiency*, *Annals of the American Academy*, May 1916, p. 25.

¹¹ Helen Marot, *The Creative Impulse in Industry*, 1918, p. 45.

was based upon the idea of collecting from the whole body of workers all the trade knowledge they possessed and assembling this knowledge in a planning department. This department was to be conducted by experts, who were to issue specific detailed orders as to the methods of work, which orders were to be obeyed without knowledge or question. Frederick W. Taylor has himself set forth this principle as follows:¹²

The first of these four great duties which are undertaken by the management is to deliberately gather in all of the rule-of-thumb knowledge which is possessed by all the twenty different kinds of tradesmen who are at work in the establishment—knowledge which has never been recorded, which is in the heads, hands, bodies, in the knack, skill, dexterity which these men possess—to gather that knowledge, classify it and tabulate it, and in most cases reduce it to laws and rules; in many cases work out mathematical formulae which, when applied with the co-operation of the management to the work of the men, will lead to an enormous increase of the output of the workmen. . . .

The fourth principle is the deliberate division of the work which was formerly done by the workmen into two sections, one of which is handed over to the management. An immense mass of new duties is thrown on the management which formerly belonged to the workmen.

The attempt to put all the “heads” together in the planning department, leaving nothing but “hands” in the shop, led to a righteous revolt of labor, and upon this rock scientific management was almost wrecked. There is a common impression, carefully fostered by some of the superficial efficiency engineers who have cast so much discredit upon a helpful and earnest profession, that labor opposed the Taylor system only because it increased production. On the contrary, the indictment against it almost invariably rests upon the attempt

¹² F. W. Taylor, *Principles of Scientific Management*, in First Annual Conference Amos Tuck School on Scientific Management, pp. 32, 35.

to deprive the worker of all pleasure in his work—upon its deadliness to the instinct of craftsmanship—an instinct as valuable to the management as to the men, and most of all to society as a whole.

Labor's Antagonism to the Taylor System

More important than the specific protests, has been the instinctive recoil of the laborer everywhere against this effort to deprive him of the mysteries of his craft, which from the days of the guild and long before, had been his most valuable and most pleasure-giving possession. Labor does not normally wish to restrict output. Such action revolts the inbred instincts of craftsmanship and is resorted to only as a measure of defence or retaliation against what it believes to be incompetence or injustice on the part of the management in the interest of ownership. The literature of the labor movement is filled with condemnation of management for its sins of wastefulness, incompetence, and ignorance as causes of restricted production.¹³ As little good comes from these mutual recriminations, progress out of this fight in a blind alley must be sought elsewhere than in charges and counter-charges.

¹³ "A good deal has been said about restriction of output practiced by workingmen and their organizations. The blame has been generally laid on the shoulders of one party alone. The fact is that workingmen have universally condemned such restrictions, or what looked like it, perpetrated by their own employers. They saw, with the clearness of experts, how deadening to efficient production have been the conservatism in methods; retention of plants long out of date, inconvenient in their design and wasteful in their demands on time and energy which should have gone into the work itself; they saw an unwillingness to make needed alterations, scrap antiquated tools and adopt the best current practice. They have been subjected to deadening influences all around. They know of it and speak of it. Good workmen do not want to stay long in such places, because some protective craft instinct tells them that their own skill will suffer if they do. The truth is that men who have spent years at a trade and take pride in their workmanship are among the best critics of equipment, methods and managerial standards."—Meyer Bloomfield, *Management and Men*, 1919, p. 37.

From the very beginning the enthusiastic defenders and discoverers of the principles of scientific management have had a glimmering of the truth. It would be wholly unfair to Frederick W. Taylor to pass this point without placing beside the passage just quoted another paragraph from the same address, in which he says: ¹⁴

Hardly a single piece of original work was done by us in Scientific Management. Everything that we have has come from the suggestion of someone else. There is no originality about Scientific Management. And, gentlemen, I am proud of it; I am not ashamed of it, because the man who thinks he can place his originality against the world's evolution, against the combined knowledge of the world, is pretty poor stuff.

Affording Opportunities for Original Work

Taylor then goes on to insist that once a standard of work has been established by investigation it should be carefully learned and followed, and adds:

When you have got to the top by the present method, invent upward. . . .

That is exactly what we say to our men. We say, "We do not know the best; we are sure that within two or three years a better method will be developed than we know of; but what we know is the result of a long series of experiments and careful study of every element connected with shop practice; these standards that lie before you are the results of these studies. We ask you to learn how to use these standards as they are, and after that, the moment any man sees an improved standard, a better way of doing anything than we are doing, come to us with it; your suggestion will not only be welcome but we will join you in making a carefully tried experiment, which will satisfy both you and us and any other man that your improvement

¹⁴F. W. Taylor, *Principles of Scientific Management*, in *First Annual Conference Amos Tuck School on Scientific Management*, pp. 48-54.

is or is not better than anything before. If that experiment shows that your method is better than ours, your method will become our method and every one of us will adopt that method until somebody gets a better one."

Here speaks the true scientist, and had this method been followed throughout in the introduction of scientific management many years of discouragement and much ill feeling might have been avoided. Unfortunately many of the superficial followers of Taylor forgot this advice, and it cannot be said for Taylor that he always followed it himself. Moreover, until scientific personnel relations, with proper adjustment, job analysis, and above all adequate systems of training and promotion were worked out and applied, the machinery for fully utilizing the above ideal did not exist. Furthermore, the tendency to more and more intense specialization in tasks grew rapidly. An apparently easier way and a short-cut to greater immediate efficiency was to install a clever, if sometimes superficial, planning department, with elaborate records, planning boards, detailed orders, functional foremen, and similar paraphernalia—thus once more trying to substitute improved methods and machines rather than improved organization of personnel. As is often the case with short-cuts, this one led into a ditch.¹⁵ Labor lost interest; its suppressed

¹⁵ "With the abandonment of the apprenticeship system came, of necessity, the splitting of the work up into operations so as to enable less skilled men to handle it. This was the beginning of the 'lathe hand,' 'planer hand,' and 'drill press machinist,' which are so common at the present time. Added to this was the wave of so-called scientific management that swept over the country and which advocated the still further division of the work into sub-operations so that the worker was no longer a machinist in any sense, but an 'operator' whose sole duty was to perform a very few motions which could not readily be performed by the machine itself.

"To make matters worse we began to talk about 'fool-proof' jigs, to advocate the centering of all the brains of the establishment in the office, to plan out beforehand every operation and every movement which the worker must perform. We began to separate the shop personnel into thinkers on the one hand and appendages to machines of various kinds on the other; to take out the little remaining human elements and to substi-

instinct of craftsmanship was replaced by indifference, and then by hostility to the work of production. Denied the opportunity to use ingenuity in improving production, labor found a splendid opportunity to exercise its ingenuity in avoiding production.

Democratic Planning—The New Spirit

An examination of the literature of industrial engineering that has appeared since the war shows that a complete transformation has taken place. Everywhere engineers are realizing that planning must be made democratic, in industry as in the state; that a planning department must be fundamentally an organizing department, bringing to bear upon production all the mental ability to be found in the plant or that can be called in from outside. Only in issuing the orders is there room for even the form of autocracy. This new spirit finds one of its best expressions in the writings of Robert B. Wolf, former manager of the Spanish River Pulp and Paper Mills, who, in a meeting of the Taylor Society, thus rebukes the older schools:¹⁶

There is a deplorable tendency on the part of some of the men who believe themselves to be Mr. Taylor's followers to have the central planning department do all the think-

tute an impersonal planning department, made up in too many cases from young college graduates with little or no shop experience. In other words, we took away all the interesting parts of the work and made the men into attachments to the machines, demanding in many cases that they follow exact motions laid down by others, in performing their daily tasks.

"After dehumanizing the shop, so far as consulting with the men actually on the job was concerned, and making the operators into automations as far as possible, we found much discontent, and lack of interest became noticeable. But instead of attempting to find the cause, to get at the real psychological reasons for the lack of interest, too many shops adopted the paternal attitude and began to 'do things for the employees,' and in many cases to do them in such a patronizing way as to offset any good which they might have accomplished."—F. H. Colvin, *Labor Turn-over, Loyalty and Output*, 1919, p. 6.

¹⁶ R. B. Wolf, *Bulletin of Taylor Society*, Jan. 1916, p. 13.

ing for the organization and I hope that the powers of this society will be directed against this tendency, for it is a thoroughly unscientific procedure. The doctrine that any scientific method that increases productivity is scientific management is absolutely erroneous. Lower unit costs do not mean more wealth when those costs are obtained by sacrificing the mentality of the employee.

In another place he explains in detail just how such sharing in the process of planning may be brought about.¹⁷ In the work of cooking and pressing paper-pulp the workmen engaged were given full information as to all the processes. The chemical and temperature conditions by which the best results could be obtained were first determined by careful, scientific investigation. Then these processes were explained to the employees. Progress charts showing the ratio of approximate approach to ideal conditions were posted as guides and standards for the craftsmanship of those who did the work and their co-operation was invited at every point.

Effect of Democratic Planning

"The net result of all this," continues Wolf, "was an increase in our production from 225 tons per day of the poorest quality of fiber to 400 tons per day of fiber which today is recognized as a standard of excellence throughout the world. This was done without adding a single digester or putting in a single additional wet machine for the handling of the finished product."

While these fundamental operations were not changed or enlarged, yet the inventive ability of the men was so aroused and stimulated over the details of their work, that their sug-

¹⁷ R. B. Wolf, Bulletin of Taylor Society, March 1917, pp. 5-13. This article contains full statement of the principles involved and practical methods, with charts, used to attain the ends.

gested improvements resulted in such a series of cumulative changes as completely to transform the plant within the seven or eight years the system has been in operation. This result demonstrates that the old inventive instinct is still there, eager to express itself if given opportunity and informed as to methods and material upon which to work.

The same methods were then transferred to the operation of the hydraulic presses, where the pulp is squeezed of its surplus water and made into "cheeses." A year was spent in devising a machine that would give a record of all the processes and a standard of correct operation. The posting of the records so obtained raised the standard of efficiency of the men from 42 per cent to 60 per cent. But when the foremen took the apparatus by which these results were determined, explained it to each worker, and enlisted his interest in attaining the standard, the average efficiency rose at once to 80 per cent and remained there continuously. "This was accomplished without resorting to piece-work, bonus, or any of the regular special methods of payment," says Wolf, "our men being paid by the day throughout the entire plant. The interest that was taken in the work came absolutely because the men were being furnished with a record of what they were accomplishing, and in the formation of this record there was an opportunity for them to express themselves."

Craft Spirit and Quality

Competition in quality will always rouse craftsmanship and generally increase quantity. But incited competition in quantity can never result in anything more than a sudden spurt, and then a sullen reaction. The instinct of workmanship is not interested in "tonnage," "mileage," or any of the other terms by which our national characteristic for big output is expressed. These things are too recent in industrial

history to have developed any instinctive interest. But the craft spirit is intensely interested in quality and will respond when offered opportunity for gratification. It will do this with extra enthusiasm if coupled with the group instinct. Each worker must see his work as a contribution, however small, to a planned and perfect whole, and acquire as much knowledge as possible of the planning. The visitor to those examples of perfect craftsmanship, the great cathedrals, is constantly surprised and pleased by finding little, almost hidden, bits of artistic work that bespeak the earnest skill of some unknown craftsman, whose instinct for perfect work and loyalty to the building group would not permit bad work even though almost unseen.

Here we touch upon another element essential to the gratification of the creative instinct—the desire for beauty. The hideousness of design that marks much of the products of the machine age tends to destroy all pride in the work. If the whole is to be a monstrosity, there is no incentive to perfect the small part. If the whole is foreseen as a thing of beauty, the most careless worker will hesitate before marring the vision of the completed article by bad workmanship. There is a most important lesson here with regard to the value of beauty in a multitude of other directions, which it is most gratifying to note that American industry is at least beginning to study.

Industrial Leadership

Leadership is a strong element in group solidarity; but industrial leadership has been so often purely mercenary and wholly incompetent as to destroy or antagonize the group instinct. Leadership and management in modern industry have largely depended upon possession. Only by chance did such possession carry with it that master skill in work or even in management that commands respect from the trained

craftsman. Morris Llewellyn Cooke very appropriately reminds those who are so ready to denounce labor for restricting production that:¹⁸

We need constantly to remind ourselves, however, that the employing class has been guilty of many varieties of sabotage as, for instance, when consciously placing in executive positions those not fitted properly to carry on their functions. If the employers under the new dispensation are to have a right to call upon their employees for full performance, the latter certainly have the right to demand competent leadership. The day does not appear to be far distant when this right will be exerted.

Difficulties in Applying Principles

The principles that have been discussed in this chapter, and that are occupying the attention of the best minds concerned with industrial management, are not easy to carry out. They cannot be introduced with the "hip-hurrah" scheme of an inspirationist who is able to rouse enthusiasm among the men and confuse the management with fine phrases about justice, co-operation, energy, and service. The instinct of craftsmanship was not destroyed in a moment. It cannot

¹⁸ M. L. Cooke, *The Problem of American Manufacturers*, *Annals of the American Academy*, Sept. 1919, p. vi.

"Throughout our whole system of production there is a tendency to blame the man lower down rather than the man higher up, with the result that the man in the shop may be reprimanded, or even discharged, for an error in judgment which caused the loss of a few dollars, while the man at the top, making a similar error in judgment costing thousands of dollars, too frequently gets by without anybody's knowing that the loss was due to his failure. . . . If the business does not make profits we naturally blame those causes we can see, and ignore those we can't see; this is the reason the shop gets the blame, and the office often goes free. If the business makes money the executives always get credit; but inasmuch as the elements entering into profits are numerous and intricate, they are not by any means a safe estimate for the effectiveness of executives as producers. In fact many times increased profits are made by cutting down production, even though the community may be sadly in need of the product."—H. L. Gantt, *Influence of Executives*, *Annals of the American Academy*, Sept. 1919, pp. 257, 258.

be restored by a wave of the hand. Fortunately it has never been more than temporarily suppressed and can be brought into force in much less time than it has taken to turn it away from its proper object. But the restoration will require careful study, a complete revolution in methods of management, fundamental reorganization of much of modern industry, and a far greater knowledge and skill on the part of managers than has hitherto been demanded.

CHAPTER IX

TRAINING¹

Productive Machinery versus Productive Skill

For a century industrial study was devoted to machines. For a decade only has much attention been given to methods. Today we find that in neglecting the training of men we have disregarded the greatest source of potential power. So swift and so amazing was progress through mechanical invention that we came to think that by putting the brains into the machine we could dispense with brains in the machine tender. As a consequence, productive skill declined as productive machinery flourished. The skill of the average worker is probably less now than in any preceding age. The blame for this must be shared by school and factory, and both may pass it along to universal indifference. So things have come to the point that automatic machines are tended by unskilled laborers, incapable of improving, replacing, or understanding the intricate tools they tend. Today, as invention declines, craftsmanship disappears, and national industry is weakened by a lack of ability in the human and after all the only essential element. Therefore there is a sudden widespread interest in methods of cultivating skill.

Destruction of Craftsmanship

Dean Herman Schneider of the University of Cincinnati, one of the foremost authorities on industrial education, thus

¹ The whole subject of training is best treated in R. W. Kelly's *Training Industrial Workers*, 1920. This work should be consulted by those who wish to go further into this subject. It also contains a very complete bibliography.

describes the process by which the machine industry has destroyed skill in the great mass of workers: ²

In the first place, it is only within the past two or three generations that mankind has worked in masses within walls. For centuries mankind did self-directed work, largely in the open air. These were the farmers, the seamen and the forest rangers. As civilization grew, a constantly increasing minority did self-directed work, individually or in small groups, indoors: these were the artisans in the skilled trades, who met the demands of growing communities. Then came the great change to the factory system through the development of power devices; this dates virtually from the invention of the steam engine.

In the second place the industrial worker formerly knew a *whole* job rather than a part of it; he performed a great variety of functions in the completion of his task, instead of endlessly repeating the same operation. The clock maker made a *whole* clock, working individually, and the necessity of working out every part's relation to every other part gave the worker a mental stimulus, and, therefore, a higher development. The finished product was all his own; the desire for self-expression, which every man has, found an outlet through his work; and, once having served his thorough apprenticeship, he worked largely by self-direction. Under our present highly organized industrial conditions the making of a clock is subdivided into a large number of operations. Each workman in a clock factory makes piece after piece of the same kind, principally by feeding material into a machine, and why he does, he does not know and usually is not told. We are putting the brains into the management office, and making the workman a purely automatic adjunct.

For a time there were many who thought this a natural and desirable mode of evolution. If all progress could be embodied in the machine, the whole world could be ransacked

² Herman Schneider, *Education for Industrial Workers*, 1915, pp. 6, 7

for cheap, unskilled labor to watch the almost human machines. Apprenticeship systems declined. Training was ignored, and the result was the vast mob of unskilled adults now the despair of industrial managers.

Mental Demands of Middle Ages

We are learning that the machine, instead of dispensing with the need of an educated working class, has accentuated that need. The craftsman of the Middle Ages or the hand-worker of our grandfather's day could attain great skill in his trade while remaining illiterate. Trade ability was handed from person to person by word of mouth and example. It was perfected by observation and council from master craftsmen. Few of those who did the marvelous work in wood and stone of medieval times could even read or write. Nor had they any need of the knowledge found in such books as existed. The standardized technical knowledge of the time was not so great but that it could be stored in the mind of the individual worker and by him passed on. The principles involved were simple, largely rule-of-thumb, and depending upon trade habits and skill attainable by practice and personal instruction. The plan of the completed work was usually carried in the head of the craftsman and found form only when the article came from his own hands.

Mental Demands of Modern Times

At all these points the modern worker seems to be sharply distinguished from his industrial ancestors. He may have less need of the keen, practiced eye and skilful hand than the earlier workman. He possibly does not need the long practice in acquiring habits of dexterity and the keen judgment of form and line that the artistic worker of the hand-tool age required. We are beginning, however, to doubt these conclusions.

There is certainly a far broader knowledge with which the machine worker of today must be familiar if he is to be relatively as efficient as the handicraftsman. He must know the thoughts that are embodied in the machine, and these are far more complex than those demanded by skilled manipulation of the earlier and simpler tools.

John R. Commons has vividly set forth the demands of machine industry upon the mind of the modern worker:³

The machine is an iron brain. It is built on theories of mathematics and mechanics that have accumulated since the days of Archimedes. It moves by the generation of power that began with the brain of James Watt, Michael Faraday and the inventor of the gas engine. It is made up of metals and it transforms raw material that can be understood only by a glimpse into chemistry or biology. The modern factory is indeed the forces of nature obeying the stored-up thought of man.

Consequently, the modern apprentice, if he becomes more than a multiplied machine-hand or an imitative journeyman must understand the machines and the forces of nature that he is charged with directing. This does not mean that he must be a scientist, engineer, chemist or biologist. It merely means that he must think over again and understand the principles that philosophers, scientists, engineers and inventors of the past have embodied in the workshop of the present. If he is rightly instructed in shop mathematics and mechanical drawing, he is really thinking out for himself the thoughts that go back to Newton, Watt or Faraday, and applying them to the machines and forces he is pretending to manage. If he studies the raw material he is using, and compares it with other raw material, he is getting into such sciences as chemistry, biology or commercial geography.

The modern factory is just as wonderful in its system of organization, division of labor, specialization, and man-

³ J. R. Commons, *Industrial Education and Dependency*, University of Wisconsin, Bulletin No. 916.

agement as it is in its mathematics and engineering. Consequently, in the third place, if the apprentice studies different plans of shop organization, bookkeeping, cost-keeping, efficiency, labor problems and so on, he is thinking out the elements of accounting, political economy, and even psychology, as applied to the business of which he is a part. These studies open up to him the line of promotion to foreman, superintendent, manager.

The Basis of Continuing Progress

Invention is upward from present standards, as Taylor has already told us. Such invention requires a knowledge of present standards by those who must do the inventing. Present-day workers cannot make improvements, cannot grow with their work, cannot do their work well, and certainly cannot enjoy it unless they have had a training in scientific fundamentals such as would have been impossible to even the greatest scholar of a century ago.⁴ In spite of research laboratories in industries and the valuable work of scientists and graduates of technical universities and schools, the continuous

⁴“Industry has ceased to be essentially an empirical, rule-of-thumb procedure, handed down by custom. Its technique is now technological: that is to say, based upon machinery resulting from discoveries in mathematics, physics, chemistry, bacteriology, etc. The economic revolution has stimulated science by setting problems for solution, by producing greater intellectual respect for mechanical appliances. And industry has received back payment from science with compound interest. As a consequence, industrial occupations have infinitely greater intellectual content and infinitely larger cultural possibilities than they used to possess. The demand for such education as will acquaint workers with the scientific and social bases and bearings of their pursuits becomes imperative, since those who are without it inevitably sink to the rôle of appendages to the machines they operate. Under the old regime all workers in a craft were approximately equals in their knowledge and outlook. Personal knowledge and ingenuity were developed within at least a narrow range, because work was done with tools under the direct command of the worker. Now the operator has to adjust himself to his machine, instead of his tool to his own purpose. While the intellectual *possibilities* of industry have multiplied, industrial conditions tend to make industry, for great masses, less of an educative resource than it was in the days of hand production for local markets. The burden of realizing the intellectual possibilities inhering in work is thus thrown back on the school.”—John Dewey, *Democracy and Education*, 1916, p. 267.

detailed progress in industry comes from the inventive skill of the multitude of workers. Such progress will halt, or move with an irresolute step, unless labor knows the principles that underlie production.

This knowledge has been so standardized that it is proper material for the schools and is available in all libraries. It is the most valuable social possession of our age, the foundation upon which civilization has been built.⁵ From every point of pedagogical theory it should be the main subject matter of education. The schools introduce the new citizen into a commonwealth based industrially upon the standardized facts of improved production. Many other things are a part of a cultured life, and there is need for knowledge of arts and literature, aesthetics, and dramatics. But these things exist and grow only because of the industrial foundation upon which they rest.

Deficiencies of Present-Day Education

An education that neglects the senses, the motor activities, and the technological capacities is biased and unbalanced. Progressive educators have long noted and denounced this defect in our schools. We have educated for leisure rather than life. A small professional class, least related to the essentials of society, has dominated and directed the curriculum. The schools were apart from the society that maintained them and for which they were supposed to prepare their pupils. They neglected the life-career motive of most of the children. They trained those who must carry forward society industrially for a life of more or less parasitic idleness, or for professions already overcrowded and not basically essential to social life. The youth in such schools feels himself out of touch with the life in which he is eager to bear a part. He leaves the

⁵ Thorstein Veblen, *Instinct of Workmanship*, 1914, p. 103.

school to get into life. Hence the rapid falling off in school attendance noted with regret by every observer. Only a minority ever reach the sixth grade, where education may be said to begin. All before that is merely gaining the simplest and most essential tools with which an education is to be built. Still fewer reach the high school, where real training for industrial life should be received, and only a very small percentage reach the university and receive that adequate knowledge of existing standards of attainment which makes easy further invention.

Education for Life Work

This desertion of the school is closely related to one of the principal causes of labor turnover. The school does not offer a progressive, permanent development of a life career. Educators, like John Dewey, have long insisted that education should be for life and through life and in life. That is, it should be a part of the home, the shop, the state, and every other phase of actual life. Especially it should be closely integrated with the industrial effort by which the pupil must live. It should continue as long as life lasts and be confined to no one special institution, such as the school. Because the school of the present inherited the monastic traditions and lived apart from industry, it failed to reach the masses or to prepare them for their life work.

In protest against this there has been, during the last decade, a remarkable growth of technical, vocational, and industrial education. This movement has reached into and is transforming the courses in the established schools. It has led to the development of night, continuation, correspondence, part-time and extension schools. In the case of the so-called Gary system the change has been more thoroughgoing. The system of industrial training has been completely integrated with literary training. Management, the care of the schools,

the construction of apparatus, and the amusements of the pupils and of the entire neighborhood are made a part of the teaching work.⁶

Necessity for Plant Training

Until the Great War criticism was directed almost exclusively against the public schools. All change required to meet the new industrial environment was expected from the educational institutions. No one expected the industrial environment also to change. The school was to come to the factory, not the factory to the school. The crying need for skilled workers in the war, and in the international competition following war, has led to a phenomenal development of factory training. In this process both schoolman and industrial manager are being educated and school and factory are alike transformed.

An adequate training system makes a plant a place for continuous growth and development. It corrects mistakes in adjustment with a minimum of lost time and opportunity. It makes possible a proper utilization of all human material. It also enables that human material to utilize its opportunities to its greatest advantage and enjoyment.

Every plant has some sort of training always in progress. Some managers may deny this, which only means that the training is unconscious, unorganized, useless, and wasteful. Training by "picking up a trade" wastes the worker's time, the employer's resources, and the product of the industry. It results in drifting, slyness, and superficiality, and graduates an army of wandering unemployed that drag down wages and handicap industry. H. L. Gantt, thus characterizes this policy:⁷

⁶ R. S. Bourne, *The Gary Schools*, 1916, especially Chapter III.

⁷ H. L. Gantt, *Organizing for Work*, 1919, pp. 88, 89. Italics in original.

Many of our large industrial concerns have estimated that the cost of breaking in a new employee is very high—running from about \$35.00 up. We have already satisfied ourselves that if only a fraction of this amount is expended in training the inferior workman, we can reduce migration very materially. In other words, money spent in proper teaching and training of workmen is a highly profitable investment for any industrial concern, provided there is some means of measuring and recording the result. So beneficial have our training methods proved that we are inclined to believe that *the practice of stealing good workmen from one's competitors will ultimately prove to be as unprofitable as stealing his property.*

Before the rise of modern industry the world was controlled largely by predatory nations who held their own by exploiting and taking by force of arms from their less powerful neighbors. With the rise of modern industrialism, productive capacity has been proven so much stronger than military power that we believe the last grand scale attempt to practice the latter method of attaining wealth or power has been made. In this great war it was clearly proven that *not what we have*, but *what we can do* is the more important. It clearly follows, then, that the workers we have are not so important as our ability to train others; again illustrating the fact that our productive capacity is more important than our possessions.

Character of Plant Training

The character of the training which any plant should introduce must depend upon the work to be done. This involves the character of the employees and the industry, as well as the condition of the educational institutions in the neighborhood. The fundamentals should be acquired outside the plant, though sometimes this cannot be done. Even then no plant can afford long to employ anyone who cannot read and speak the English language. If facilities for such elementary education are not afforded by public authorities the firm will find it profitable to supply them. Employees who cannot

read safety notices or instructions, or understand orders in a language common to the shop, who can work only under foremen of a certain nationality and are incapable of sharing in the common mind of the plant, are extremely inefficient.

When the schools have in any adequate degree risen to their duties and opportunities, shop training should be confined to information largely peculiar to the plant and necessary for a specific promotion or job. Such education is a great force making for permanence. Every analysis of turnover shows the greatest percentage of change among the unskilled and the young. By training, the unskilled can be transformed into skilled. During the training period they are held by the prospect of growth in skill and in income. After that, the possession of a skilled job, together with the possibility of promotion, removes the incentive to change.

Training Younger Workers

Much the same effect is produced by training younger workers. A certain amount of drifting is, for the young, desirable. They should not settle down until sure that the right vocation has been chosen. Until a proper system of vocational education and guidance exists, the necessary comparison of jobs can be made only by moving from plant to plant. Regular training classes, with opportunity for learning and growth, greatly reduce the turnover among the young. The proper place for such training is, nevertheless, in some modified form of the public schools, where guidance can be impartial and education will not be sacrificed to profits. Only with adults, capable of protecting their own interests, can training be safely entrusted to unsupervised private firms.

Training Adults

For such adults there is a great and growing field of training. Progressive firms are everywhere establishing train-

ing departments, sometimes functionalizing a section of the plant for the purpose, and again mingling production and education from the beginning.⁸ The general direction of a training department should be part of the work of a director of personnel relations. His work is intimately connected with problems of promotion, transfers, and standards of production. Employees must be assigned to the training department upon the basis of the reports and records in the personnel department. Conversely, reports of training results would determine much of the work of the personnel department. Such a system establishes continuous vocational training. It insures growth throughout a lifetime. There is no greater insurance against premature old age. Furthermore, it permits the adjustment of all industrial demands, giving each worker a choice of occupations and providing that element of change which satisfies the instinct of adventure and wandering.

Organization of Training System

The pedagogy and organization of a plant training system must be different from that of the schools. The main decisions as to a life career will, in most cases, have been made. Training must be related to production. It must build upon the cultural education of the schools. It must be able to present its cost sheets and its report of results, and these must accord with its forecasts. Plant training is usually for a definite position, previously decided upon. Methods of doing these things have been scientifically determined, and it is possible to submit specifications as to cost, time, and equipment required to transform any given block of workers possessed of certain qualifications into workers capable of filling higher positions.

⁸ C. R. Allen, *The Instructor, the Man and the Job*, 1919, is a full and excellent treatment of all phases of shop training. It should be consulted by those who wish to follow further the subjects touched upon in the text.

The personnel director must unite plant training with all outside means of instruction. His office must be a reference department on educational facilities which should be known and used. He should be familiar with the desires, capacities, and ambitions of every worker and be able to advise each one what form of education will best further his special progress. This means a well-classified and complete collection of information on the literature of the various trades in the plant and the instruction offered by all educational institutions, public and private. This sounds encyclopedic and impracticable, but such matter is in great measure already classified and easily accessible. Full use of such information permits a proper adjustment of plant training to that of outside institutions, with a full utilization of the possibilities of the latter.*

The Foreman's Place in the Training Scheme

The transformation of a factory or other industrial plant into an educational institution, even to the extent demanded by a proper and profitable training system, brings with it great and fundamental changes. It calls for a new type of foreman. Here we touch upon one of the weakest links in the improvement of personnel relations. Advocates of improved methods in management are apt to confine their energies to selling their plans to the higher officials, and then to persuading the rank and file to consent to their adoption; the foreman is forgotten. More than once, in teaching classes in personnel relations, I have had foremen who were pupils say, with regard to some suggested method, "I think we have something like that in our plant. I have heard the men talk

* "First, the primary aim of the educational work carried on with an industrial organization is to train employees for immediate usefulness within the organization itself. Secondly, the more general forms of education can be better carried on and, from every point of view, should be conducted by the community rather than private enterprise."—H. C. Link, *Employment Psychology*, 1919, p. 173.

about it, but nobody ever said anything to me about it." In every instance, the method in question required intelligent and enthusiastic support from the foremen to assure success.

Training on the job, even though very properly supplemented by functionalized training departments, or introduced by vestibule schools, demands that the foreman should be primarily a teacher. If he is to act as instructor he must be given wider knowledge, responsibility, and dignity. The gradual recognition of this fact has given rise to the beginning of what are growing into elaborate courses especially designed for the training of foremen.¹⁰

The foremen of the future will be very different from the foremen of the present. A different type of men will be selected, less of pure drivers but men who combine diplomacy and a broad understanding of human nature with the faculty of getting things done. The character of foremen is also largely determined by the traditions and ideals of the organization. The traditions and ideals of the business organizations of the future will be decidedly more liberal than those of the business organizations of the present. The future foremen's attitude and point of view will also be moulded by definite training received before they assume their duties. Finally the foremen will owe their promotion largely to the supervisor of labor and will be assisted by him in learning the ropes during their first few weeks on the job. Consequently they will be much more amenable than are foremen of the present to advice and criticism from the labor supervisor.¹¹

¹⁰ "The foreman's education has been sadly neglected and yet he is the man, and the only man in authority, who makes contact with our workmen through a half of their working hours. . . . No ideas are of lasting benefit to any plant unless they are well sold to the foremen, and only a mere fraction of the present day literature on how to analyze and handle the human factors in industry is intelligible to the foreman who must do this work in detail."—John Calder, former president Remington Typewriter Company, in *Iron Trade Review*, Apr. 17, 1919, p. 1030.

¹¹ S. H. Slichter, *Turnover of Factory Labor*, 1919, p. 385.

The technical education of the foreman will come largely prior to promotion to his position. Then should follow training in a more scientific knowledge of human nature. He should know the methods of appealing to the fundamental instincts of those with whom he must deal. He should be familiar with systems of routing, planning, and handling of materials, and should share in the fixing of such systems. He should know the plans of promotion and the ambitions of the workers whom he directs. He must be constantly consulted by the head of the personnel relations department on these and all other points concerning the movements and control of persons.

Training Conferences for Foremen

Such training of foremen can be done largely by the conference method. This is simply the seminar method of the universities in working clothes. Someone leads the conference, but he does not monopolize the teaching. Each person is teacher in turn to the extent of his abilities. Ideas are subjected to mutual analysis, criticism, and development. It is important that such conferences be kept upon this high and democratic seminar standard and do not degenerate into meetings where executives give orders.¹²

Such conferences should also be the normal schools of the industry, training the foremen in methods of teaching as well as managing. It should never be forgotten that pro-

¹² "Should the chief officials use the conference in the main for purposes of announcing what they had already decided upon or should the conferees, having authority only to recommend, enforcement being left to others at the latter's discretion, discover that as a matter of record the recommendations submitted were being rejected without due grounds, the conference likely will not evoke any particular feeling of enthusiasm or responsibility. Those concerns which are using the conference system most effectively do not permit higher officials to make of it an empty shell, some of them going to great lengths in assuring the conferee of his responsibility."—E. B. Gowin, *The Selection and Training of the Business Executive*, 1918, p. 139.

duction is one trade and teaching is another, and the foreman with technical skill at a trade and even tact and ability in handling workers, is not always capable of teaching others what he knows. The transformation of foremen into teachers, or at least the addition of the teaching function to their other duties, is directly in accord with the best practice of scientific production management. One of the fundamental principles of such management is the use of "functional foremen as teachers instead of drivers. Such foremen are specialists in various phases of the work. As they have an opportunity for education and experience in their special lines they become in the nature of individual expert advisers, teaching the workman the higher aspects of his craft."¹³

There is an opportunity for training in the preparation of such careful, detailed orders as scientific management calls for. Standardized orders, fully written out and accompanied by drawings and detailed instructions, can be made valuable textbooks for special operations and used for the education of the workers.¹⁴

Possibilities of Industrial Training

Education in and through industry has no limits of age or degree. The existence of research departments and laboratories, and especially their organized co-operation with educational institutions in such work, opens a field of training and

¹³F. B. Gilbreth, *Applied Motion Study*, 1917, p. 23. In this connection see also Hugo Diemer, *Industrial Organization and Management*, 1915, pp. 7, 8. Federal Board for Vocational Education, *Foreman Training Courses*, Bulletin No. 36, discusses importance of and gives outline of training course for foremen.

¹⁴E. D. Jones, *Administration of Industrial Enterprises*, 1916, p. 130; F. A. Parkhurst, *Applied Methods of Scientific Management*, 1917, pp. 118-119. The latter gives methods by which such orders are prepared and used in the Ferracute Machine Company's Works; R. W. Kelly, *Training Industrial Workers*, 1920, Appendix F, pp. 376, 377, gives an extract from the standard practice sheet of the Hood Rubber Company, which is prepared with a view to educational purposes.

experience in original research of the highest grade. The Mellon Institute of the University of Pittsburgh has arrangements by which any firm can endow a fellowship for original research upon any problem in whose solution the industry is interested. Such a fellow has access to all the resources of the university, including the expert advice of members of the faculty. The Massachusetts Institute of Technology has carried such co-operation still further in the plans for its recent endowment. Firms giving a certain sum to this endowment are entitled to the use of the libraries, laboratories, and all research facilities of this great institute. The sum required is, of course, very many times less than would be required to purchase and maintain a private research department with much poorer facilities. Firms with such connections can provide for the very highest training for any of their personnel, thus making education in connection with industry as boundless as the educational facilities of the age afford.

Effect on Labor and Production

A thoroughgoing system of plant training, reaching from the bare removal of illiteracy to the highest phases of original research, embracing all grades of labor, and using every educational resource, public and private, implies a transformation of the industrial process into something much like the ideal of the greatest educators. Such a system of training will bring with it fundamental changes in the whole industrial structure. Dr. Lee Galloway suggested some of these in an address before the Seventh Annual Conference of the National Association of Corporation Schools, when he said:

Training, however, touches the very heart of employee relations of every kind. . . . Training creates greater efficiency, but it also stimulates ambition for promotion; training develops the employee's interest in his work, but it also awakens a desire to know the next job as well; train-

ing creates the spirit to investigate one's own job, but it also awakens a curiosity concerning the balance sheet; training promotes loyalty to the firm, but it likewise stimulates a patriotic prejudice against unjust usurpation of the best positions by unworthy persons; training develops greater skill, but at the same time it opens the employee's mind to any disparity between his own growing capacity and that of his boss; training increases the employee's appreciation of his employer's efforts to promote the welfare of the organization, but it induces him also to measure his own influence in the determination of affairs (no matter how trivial) against the arbitrary demands of his superior. In short, where one sets out to liberate power he must provide the means for its control and direction.

Training makes possible a rapid and unlimited increase in production. Greater knowledge gives greater productive power. No improvements effect so continuous an increase in that control over nature which is the essence of industry as improvements in the mental equipment of those concerned. Such increased production is the only means by which all can rise. Such rising need not be by competitive crowding out of an ever-decreasing number as the top is reached. Each one rises by virtue of an increasing share in a growing product.

Effect on Mental Ability

Training is another method of meeting, and at least alleviating, some phases of monotony in work. A monotonous task which is recognized as a stepping-stone to something more interesting, remunerative, and otherwise desirable, loses much of its monotony. Moreover, even an active mind temporarily directing such a task, if filled with material for mental exercise, is much less distressed by its monotony.

It is a commonplace that the mastery of skill in the form of established habits frees the mind for a higher order

of thinking. Something of the same kind is true of the introduction of mechanically automatic operations in industry. They may release the mind for thought upon other topics. But when we confine the education of those who work with their hands to a few years of schooling devoted for the most part to acquiring the use of rudimentary symbols at the expense of training in science, literature and history, we fail to prepare the minds of workers to take advantage of this opportunity.¹⁵

Training makes the entire plant one vast "suggestion box" and hotbed for the incubation of ideas to fill the box. The reason for the almost universal rapid fizzling out of the suggestion-box idea in most industries, in spite of the awarding of bonuses and prizes to inspire interest, should have been evident to even a tyro in mental mathematics. When four 1's have been taken from 4, only zero remains. When the minds of the workers have been emptied of their original content, ideas are not readily produced by means of bonuses. In fact, bonuses and prizes are poor, but perhaps at present necessary, means of cultivating industrial ability. They appeal to wholly different instincts from that of workmanship, which is the one that must be gratified if inventions are to come.

A full knowledge on the part of the workers of the scientific laws back of their work, together with the constant inspiration derived from a vitalized training system, will fill the workers' minds with ideas clamoring for expression. A training department that permeates the entire plant organization, everywhere bringing opportunity for choice in occupation and growth in skill and income, lays the foundation of plant solidarity such as is obtainable in no other way. A group thus growing, studying, discovering, and working together, when democratically directed, possesses an esprit de corps that increases and deepens with every co-operative achievement.

¹⁵ John Dewey, *Democracy and Education*, 1916, p. 304.

CHAPTER X

ADJUSTMENTS, TRANSFERS, PROMOTIONS, DISCHARGE

Basing Adjustments on Records

Adjustments of personnel within an industry depend for success or failure largely upon the accuracy and adequacy of the records. Such internal adjustments constitute continuous selection and should be based upon a continuous and constantly improving job analysis. There should be standards of judgment and promotion, known to all and subject to sharp criticism to insure impartiality. No changes should be made because of nepotism, favoritism, and office politics. Until standards of perfection far beyond those now existing are attained, changes will be made for just these reasons. Other standards, though universally approved, will be slow of establishment. It could not be otherwise, for even though an honest effort is made to avoid such influence, we always have kindlier feelings toward those of our own race, church, club, family, or clique. These feelings will lead us to see virtues and be blind to faults; and only a clearly functioning machinery of records, rating, and promotion planning will hold this tendency in check.

Elements Involved in Transfers and Promotions

Every transfer within the plant involves three elements: two positions and the person. Intelligent handling of the situation requires accurate knowledge of the position from which the employee is taken, the one to which he is to be transferred, and the qualifications of the employee. The treat-

ment of transfers and promotions within the plant was recently considered by a committee of the Chicago Council of the National Employment Managers Association. The report of this committee, of which H. C. Hobart, employment manager for Albaugh, Dover and Company, was the chairman, is one of the best discussions of the subject. The following quotations are taken from that report: ¹

The truly scientific basis for the transfer and promotion of employees is absolute knowledge regarding every position in the organization—the positions from which a man may be taken to fill a given position and the positions to which a given position may lead. In addition to this information there must be a definite knowledge of the physical and temperamental characteristics required in a person who is to fill a given position. Separating these two ideas, there must be a standardization of duties, a classification of positions, and a standardization of requirements—a job analysis.

The first step in the classification of positions is that in which all positions having identical or very similar duties requiring the same degree and kind of skill, special knowledge or responsibility, are given the same name or classification title and are grouped together in one grade.

The grades having been established are then grouped into two classes, grades having certain characteristics in common being assigned to the same class.

.....

The purpose is still further served by listing after each grade the grades from which and the grades to which promotion and transfer may be made.

.....

In addition to affording a basis for a definite and equitable promotion system, such classification will afford a basis for the formation of a scientific wage schedule, and will afford a uniform nomenclature for all employment reports, records, etc.

¹ Report Transfer and Promotion Commission of Chicago Council, National Employment Managers Association; *Iron Age*, June 5, 1919, pp. 1518, 1519. See N. W. Shefferman, *Employment Methods*, pp. 227, 228.

All transfers should be made through the employment department. A foreman or department head who desires to obtain a particular worker from another department should make application for this change to the employment department, which will arrange for the transfer if it is possible. . . .

To properly take care of promotion and transfer in a large organization it is advisable to have an up-to-date list of eligibles for every position. This list may take the form of a card index, a loose-leaf folder, or a modification of the system used by the government at cantonments. One firm has adapted this system to its use very readily. The record card and application of each employee, together with other information, are filed in a letter-size manilla envelope, the top of this envelope is divided into 35 or so spaces, each position representing an occupation in the company's shop. Each such space representing an occupation in which that particular employee has had experience is marked on the edge of the envelope with a V-shaped punch mark. When the envelopes of all the employees are standing upright in their file all punch marks in any particular horizontal line down the file indicate employees with experience in the same kind of work.

Rating Employees for Promotion

Certain standards of practice are necessary to approximate fairness and accuracy in rating employees for promotion. The rating should be the judgment of more than one person. It should rest on standards of judgment and should embrace an established list of qualities. It should be determined by estimates made at various times, so as to avoid temporary influences of prejudice on the part of the judge or temporary spurts by the employee. Observance of these rules removes the elements of personal favoritism or the reverse, and of momentary impressions, as completely as it is humanly possible to remove them.

The most systematic effort to meet these qualifications was

made in the rating of officers in the national army.² Although the qualities which the army scale aimed to measure are not wholly the same as those sought for in industry, the method used in preparing and applying the scale is suggestive of similar work in promoting and transferring workers.

It was recognized that there is really no way to measure human nature or the qualities that compose it. All we can do, as already shown in discussing tests for intelligence,³ is to create a standard scale for the comparison of various persons. Moreover, a different scale must be made for each quality. Therefore the person preparing the scale is asked to write down the names of a dozen persons with whose qualifications he is most familiar. He then arranges them in the order of their merit with regard to one, and only one, quality. This arrangement is made by selecting the best one and the worst one first, then the one who seems half-way between; the others are placed one by one in the same manner. The reason for this method is to insure isolated consideration of a single quality at a time. This scale of actual persons is then used as a means of measuring the person to be rated, who is given the grade of the person upon the scale whom he most resembles in regard to the quality to be measured.

A similar scale is made in the same way for each other quality. The person to be judged is measured for each quality separately by the scale prepared for that particular quality. He is given the number of points originally assigned to the person whom he most closely resembles in regard to the quality under consideration. The sum total of points gives the person's total rating. There are detailed instructions as to the elements which are to be considered in rating any given

² Personnel System of the United States Army, 1919, Vol. II, pp. 252-274; Bloomfield, Selected Articles on Employment Management, 1919, pp. 213-222.

³ See p. 84.

quality. As a result it has been found that a large number of persons using this method will all rate the same men at about the same point.⁴

Simplified System of Rating

A simplified system is used in the armory at Springfield, Massachusetts. The following five qualifications are considered and weighted according to the numbers given: attendance 1; application 1; habits 2; adaptability 2; ability 4. The ratings are made every six months by a board consisting of the officer in charge, the assistant officer, general foreman, assistant foreman in charge of the workman's department, and the chief inspector. In practice it has been found difficult to fix any standards of habits and application, and consequently unless definite evidence is offered on these points the men are given full credit.⁵ This difficulty in measuring character elements is in accord with what has already been stated and suggests that such items should be omitted from rating records as well as from application blanks. Rating by several persons insures much greater care on the part of each one, as also do repeated ratings at regular intervals. Each judge knows that his estimate will be checked by that of others and also by his own estimate at a later date. Such conditions, with the requirement that each quality be checked separately, and that certain definite elements always be kept in mind in estimating a quality, place a strong check on prejudice and snap judgment.

⁴ Bloomfield's *Selected Articles on Employment Management*, 1919, pp. 220, 221, gives an effort to construct a similar blank for foremen in industry; N. W. Shefferman, *Employment Methods*, 1920, pp. 316-319; R. W. Kelly, *Training Industrial Workers*, 1920, Chaps. XV and XVI, give samples of various forms of rating scales and discuss methods of rating and promotion.

⁵ M. T. Copeland, *Business Statistics—The Automatic Rating of Workmen*, 1912, pp. 425-427; also in *Iron Age*, Apr. 3, 1914, pp. 811, 812; S. H. Slichter, *The Turnover of Factory Labor*, 1919, p. 363.

Checking Ratings

Any system of rating should also be checked by the use of intelligence and trade tests. Such use in transfers within the plant offers an opportunity for testing and developing the tests. All educational work done by employees should find a place upon the records that guide promotion and be given weight in determining rating. Finally, production records should be basic to all rating systems, but such records are only of value when they are based on time and motion studies and standardized factory conditions. Otherwise the factors of production are not under the control of the worker and he cannot justly be held responsible for his rate of production.

When the factors to be used as the basis of a rating system have been standardized and rules established for their estimation, these standards should be embodied in record blanks, with rules for their regular use. Such a blank with suggested qualities is given by Henry C. Link in his "Employment Psychology," and is here reproduced: *

Name..... Location.....

Opposite each quality enter either number 1, 2, 3, or 4, according as you consider the worker named in the 1st, 2nd, 3rd, or 4th class in respect to that particular quality.

1. Attendance.....	
2. Industry.....	
3. Intelligence.....	
4. Speed.....	
5. Initiative.....	
6. Tact	Estimate made by.....
7. Executive Ability.....	
8. Orderliness.....
9. Personal Habits.....	
10. Reliability.....	Date.....
Total.....	

* H. C. Link, *Employment Psychology*, 1919, p. 328.

Thorough training of foremen in the use of such a blank reduces the time required for checking to a few seconds for each worker. The real judging will have been done in the days before the blank is to be marked.

Location and Use of Records

Even the best of records are not automatic. The most careful ratings have a tendency to get lost in the files and thereby lose their relation to the actual movements of men in the shop. There must, therefore, be some method to insure periodic examinations and action upon the information. Modern employment practice makes all changes through the central personnel department. The proper records can be found only there. No other department can have the necessary general oversight of the entire industry. But changes should be made only after full consultation with and consent of the foremen involved.

Basis of Transfers and Promotions

Transfers from department to department offer an opportunity for continuous vocational guidance within the plant. When, a few years ago, the possibilities of systematic handling of such transfers were discovered, they were described as a panacea for nearly all employment troubles. Many industries greatly reduced turnover by simply inducing employees who desired to leave to take positions elsewhere in the same organization. This not only conduces to better adjustment; it partially gratifies that desire for change and adventure that is the prime cause of individual unrest.

Promotions may be the most prolific source of good-will, or of antagonism, jealousy, hatred, and disorder. Nothing so quickly and rightly rouses that righteous indignation that hates injustice as the belief that promotions go by favor and not by justice. Promotions should be based upon such

records as have already been described, rating production, attendance, ability, and other desirable qualities. In spite of the difficulties already referred to, the only occasion when a character rating can be made with any sense of fairness is in connection with promotions. Character is a result of the two forces, personality and environment. Hence it is a most variable quantity, and impossible to judge fairly where only personality is considered. Within the plant the environment is to some extent controlled, and at least known, and may be allowed for.

Rating Emotions

The most stable element in what is commonly called character is probably emotion, which lends itself to fairly accurate rating. John B. Watson, professor of psychology in Johns Hopkins University, has prepared a scale for rating emotions. Although this is not intended specifically for industry, and could not be adopted for such use without alteration, it is suggestive of the elements that must be considered in such a rating. It also follows the lines of the system of rating used in the army, which is now being introduced into industry. He gives these instructions:⁷

Rate each man in each of the following points:

1. *On Normality of Sensitivity to Emotional Stimuli.*

The questions before you in this rating are: Does he show anger on insufficient provocation, or does he pass by all situations without showing anger? Does he show fear on insufficient stimulation, or does he fail to exhibit fear where others ordinarily exhibit it? Are his attachments and detachments with respect to persons, places and things made on adequate stimulation?

2. *On the Evenness (But Not Absence of Emotional Tone) of Emotional Level.* Assume that every individual works at three levels: normal, high and low.

⁷J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, pp. 327, 328.

3. *On the Normality of Permanent General Attitude.* Here you should be guided by such factors as: Freedom from such attitudes as exclusion, inferiority, suspicion and embarrassment. On the other hand the person observed should be free from garrulity, oversensitiveness, display or exhibition tendencies.

4. *On Freedom from Unusual Outlets Through Which Emotional Tension May Drain.* Rate on such points as freedom from unsocial outlets, such as the chewing of the nails in public; freedom from rumination and day-dreaming carried to the point where they interfere with other activities—sub-vocal language outlets; from eagerness to run into danger, seeking for highly exciting emotional situations, talking overly much about sex matters, curiosity about the details of other people's affairs. On the other hand, the individual should possess normal outlets in work, literature, music, play, dress and social affairs.

5. *Make a Final General Rating on What Might be Called the Efficiency of the Individual's Emotional System.* Here two questions predominate: Are his total emotional assets of such a character that they will not interfere with, but on the other hand will facilitate his work and social relations? Is there likelihood of a breakdown under any emotion-producing situation which is likely to be met with under the ordinary conditions of modern civilization?

Planning for Promotion

Promotions should never be based on impulsive, momentary judgment. They should be planned far ahead. Frank B. Gilbreth has worked out a promotion plan that seems idealistic, but which he maintains has been found capable of practical operation. Something of the kind has long been in operation in many railroad offices and in some civil service departments. It offers a standard toward which any plant might well aim. It is described as follows:⁸

⁸F. B. and Lillian Gilbreth, *The Three Position Plan of Promotion, Annals of the American Academy*, May, 1916, p. 290; see also Bloomfield, *Selected Articles on Employment Management*, 1919, pp. 237-243.

The Three Position Plan of Promotion considers each man as occupying three positions in the organization, and considers these three positions as constantly changing in an upward spiral, as the man is promoted from the lowest position that he occupies into the position next higher than the highest position he occupies. The three positions are as follows: first, and lowest, the position that the man has last occupied in the organization; second, the position that the man is occupying at present in the organization; third, and highest, the position that the man will next occupy. In the first position the worker occupies the place of the teacher, this position being at the same time occupied by two other men, that is, by the worker doing the work, who receives little or no instruction in the duties of that position except in an emergency, and by the worker below who is learning the work. In the second position the worker is actually in charge of the work, and is constantly also the teacher of the man next below him, who will next occupy the position. He is also, in emergencies, a learner of the duties of his present position from the man above him. In the third position the worker occupies the place of learner, and is being constantly instructed by the man in the duties of the position immediately above.

Other valuable features of the plan, aside from the elaborate organization of understudies, are promotion charts and sheets. A master promotion chart is made by the personnel relations department, showing all possible lines of promotion from each position. This visualizes the internal movements of plant personnel and makes possible intelligently planned action instead of hit-or-miss placing. Individual promotion sheets are supplied to each worker. These sheets, worked out in consultation with each employee, plan for him the lines of possible advancement and make these lines clearly visible to him, thus supplying that visualization of growth with the industry so essential to the gratification of the creative instinct.

Objection to Promotion Plan

An objection offered to this plan is that most industries have no such symmetrical system of classification of positions as it requires. The answer is that the lack of such a system is probably due to a defect in organization. A better classification of positions is often the first step to efficient production. Careful grading of jobs according to skill, experience, and other qualities often reveals and makes possible the removal of very expensive weaknesses in organization. When such grading has been accomplished, systematic promotion becomes easy and natural. No system will fit into chaos, and in an industry no less than in a machine standardization is necessary in every part or else the whole will rattle and clash.

All the tendencies of modern management are toward such a gradation of jobs. An adequate training system creates a class of producing teachers. The Taylor system calls for functional foremen, specialized in different directions, and of greater value to the plant because of such specialization.

Training System and Monotony

A training system should also develop workers for promotion, and fit them for transfer to various positions where their services may be of most value. Proper interviewing at the time of hiring and adequate job analysis will reveal many employees capable of filling more than one position. Opportunity for promotion to a higher position than the one for which the worker was first hired should always be kept in view. Reference has already been made to the system of records used in the United States Army personnel service to facilitate such transfers and promotions. The cards are tabbed at the top for each position the person is capable of filling or for which he can be quickly trained.

In spite of everything, it appears that there will always be some "blind alley" jobs. If careful analysis shows no

natural opening, these should be utilized as training stations for unrelated jobs. A suggestion regarding their use in this way is given by Henry Farquhar in the Bulletin of the Taylor Society for October, 1919:

Monotony, where monotony exists (for there is ample evidence that many for whom in their "deadly monotonous" tasks we are prone to feel compassion, do not at all envy us with our larger responsibilities), is due not so much to the unvarying repetition of recurrent operations as to the accompanying feeling that the work holds no future possibilities. Introduce the possibility and the probability of a more attractive future, and the humdrum task becomes but a stepping stone, seen in its proper relation to the whole scheme of things, and eminently serviceable and satisfactory as a present means. The belief that each of us has a marshal's baton in his knapsack is no less stimulating today than it was in Napoleon's time, and the conviction that we have reached a position of status is no less deadening.

Need for Regular Promotion

Absence of regular promotion is a sign of bad management. Under efficient management workers grow with their work. The White Motor Company is one of several well-managed industries that have translated this principle into action. Holding that experience increases a worker's value, foremen must explain any failure to grow.

The theory is that a man should become more valuable the longer he is with the company. With this as a basis the foreman who does not recommend his men for a raise every six months is called into the office and asked for an explanation. This procedure is so contrary to the usual one of admonishing a foreman for suggesting an increase that it seems almost unbelievable; yet the plan is working out very satisfactorily.⁹

⁹ F. H. Colvin, *Labor Turnover, Loyalty and Output*, 1919, p. 43.
"The Packard Motor Car Co. is one of the automobile firms, at least,

There should certainly be a regular compulsory examination of individual efficiency records at intervals of not less than three months for new and six months for old employees. Each such revision should bring either an increase in pay or an explanation from management or men. Only when the period of physical and mental decline due to age appears should this growth cease.¹⁰ The proper handling of promotion is the proper treatment for excessive turnover. Continuous, guaranteed, impartial promotion according to ability and seniority holds employees in the civil service and in the employment of the great public service corporations.

Complaints and Arbitration Machinery

Definite machinery for handling complaints should be established before a particularly bitter grievance makes the creation and functioning of such machinery difficult. To build it in time of fierce industrial conflict is difficult, but such machinery can often function in a time of stress to the satisfaction of both parties if it has previously gained their confidence by impartial operation in comparatively peaceful times. The tendency to make the employment manager or personnel director a general arbitrator of all labor difficulties

that believes in the efficacy of the unsolicited raise, as a sincere means of keeping men contented and interested in their work. To carry out the idea in practice it has worked out a practical and successful system of efficiency records under the supervision of the employment department. These records, which are kept by the rate man of the employment department, relate to every phase of the employee's work. They include his production efficiency, his absences, his lateness, etc. Such a record is kept for every employee of the company. It is on the basis of this record that the employee's rate is raised, but a raise is never granted without a consultation with the foreman of the man's department. . . . When the records show that a man is not, in the opinion of the employment department and the foreman, entitled to a raise when, in the normal course of events he should be, that man is either called to the employment department for a conference with the rate man or with the foreman. The record is shown to the man and the reasons for his failure to receive a raise are explained."

—*Automotive Industries*, Mar. 18, 1920, p. 725.

¹⁰ S. H. Slichter, *The Turnover of Factory Labor*, 1919, pp. 350-360.

creates a conflict of duties which is apt to end in trouble. No one person, in particular one who draws his salary from one party to all disputes, can be so omnipotent, omniscient, and impartial as constantly to retain the confidence of all concerned. On the other hand, the personnel director can undoubtedly settle a multitude of little difficulties, concerning which nothing but diplomacy, common sense, and good judgment are required—a matter of great value in avoiding the accumulation of frictional heat to the point where ignition and explosion are easy.

Adjusting complaints is suitable work for a joint committee. Contrary to previously formed prejudices of employers, such a committee will not multiply complaints nor show undue partiality toward employees. This has been the universal report where such committees exist. An employee representative knows how to distinguish just complaints from querulous quibbles, and has no hesitation in expressing his opinions. On the other hand, he will fight hard for a real grievance. Neither characteristic is a drawback in searching for that standard of justice upon which alone good-will can be built.

All complaints and decisions should be recorded. This usually reduces their number about two-thirds. When foremen and employees know that complaints must be written out, they will come to an agreement before putting on paper what they know will sound foolish when read in cold blood. When all action on complaints is recorded, there soon is created a custom concerning the more frequent differences. These customary decisions finally come to take on the character of a standard, or a "common law" of industry. Knowledge of this custom will often settle disputes before they reach the stage of formal complaints. Such common law, however, should never become so binding that it cannot be changed when progress demands change.

There must be one iron-clad rule: no person must be victimized because he makes use of the machinery for complaint. This axiomatic rule is often violated. One case of discharge or discrimination of any kind against an employee because he has complained tends to destroy all faith in the honesty of the employer and all good-will on the part of the employees.

Discharges and Resignations

The power of complete discharge should be vested only in the head of the personnel department. Foremen must have the right to discharge from their own gangs, but such discharge only brings the case before the personnel department. Even if no provision for trial by a joint board exists, the causes for discharge should be standardized and proof of violation insisted upon. Discharge in ordinary times, and even more in times of business depression, is a severe sentence. I have known it to be a death sentence for more than one helpless member of an employee's family. I have known many cases where it involved economic ruin, loss of educational facilities for children, and long poverty for many besides the worker directly involved. No court in any civilized country would be permitted to impose such penalties without consideration of tested, standardized evidence to be impartially measured. Only a joint body can be trusted to give such impartiality in industry. If such a body does not exist, all the other safeguards should be used by a personnel department.

The reasons that impel employees to leave constitute a valuable body of constructive criticism available for the control of employment management. It is not easy to get the full truth concerning these reasons. The common explanation is, "Going to get a better job." Every separation should at least involve an interview with the personnel director, and to insure this, the final pay check should not be issued until

the worker has passed through the employment department. This rule should be made familiar to every worker at the time of employment.

If the personnel department has the confidence of the workers even in a mild degree, the information gained in such final interviews will be valuable. The fact that the information is often meager and indefinite tells something of the lack of good-will. Where adequate reasons are given and are classified and studied, they throw light on weak places in employment management. In such final interviews there should be no arguing or criticism, or even reply to the objections made, unless it is felt that by so doing a desirable employee may be persuaded to return. If the impression gets out that this questioning is a sort of "third degree" in which the worker is scolded for making criticisms, then criticisms will very probably stop, together with all possibility of obtaining worth-while information.

CHAPTER XI

WORKING ENVIRONMENT—WELFARE WORK ¹

Essentials Before Frills

“Be just before you are generous.” Meet all the conditions demanded by health, efficient production, and good employment practice, before adding frills and favors. If this policy is followed, some of the frills will be found essential for good production, others superficial and useless, and all will be accepted in better spirit.

The first rule of industry is that all working energy should be devoted to production. The worker should not be required to struggle against his environment in order to do good work. Yet sometimes half the fatigue incurred in a plant is due to unnecessary expenditure of energy. To hunt out and remove the wasteful, disagreeable, and harmful features that hinder production is a slow, hard task often involving severe injuries to managerial pride, and usually requiring the recognition of many long-established errors in operation. As the admission of defects is never pleasant, though usually profitable in the end, many a director of industry will forego the profits to avoid the humiliation of admitting his defects.

It is much easier to arrange for a restroom, bowling alley, or athletic club, for moving pictures or concerts, than it is to organize industry. Yet the introduction of welfare work into a badly organized industry is much like applying a soft poultice to an organic disease; the remedy is more apt to cause infection than to bring about a cure. If the work still

¹ Daniel Bloomfield, *Labor Maintenance*, 1920, treats most fully the entire subject of service work.

remains painful, nerve-racking, unnecessarily fatiguing and irritating, welfare work will only bring from the workers the common and proper question: "Why don't they give us a fair chance before they add the fancy frills?"

Working Conditions and Fatigue

Good factory practice lays first emphasis upon perfect working conditions. It insists upon a clean, uncluttered workplace. There is no gain from energy expended in climbing over or going around useless obstructions. In an efficiently organized shop, all material is delivered where it can be used with the least possible exertion; tools are properly selected and placed ready to hand, and the motions necessary are reduced to the fewest possible and the least fatiguing.

Careful physiological studies have determined the proper posture for all kinds of work. Ignorance of these studies and the laws based upon them excuses no management for neglect. There is a least fatiguing and most efficient height for each person and class of work. Typists, given proper adjustment to height and position, can do from 10 to 20 per cent more work daily and go home less tired. Chairs, benches, foot-rests, clothing—all have been studied, and standards have been adopted and principles of use laid down for almost all occupations. If the production manager has not already had the work properly organized with relation to these matters, the personnel manager should see that this is done before he talks about welfare work.

Light, Heat, and Ventilation

After these often neglected fundamentals of efficient production have been provided, attention should be directed to the equally essential features of lighting, heat, ventilation, and fire protection. These things, also, have been standardized. Engineers can now supply any manager with the best plan

of lighting for almost any purpose. The proper temperature and humidity for efficient working and the means of securing such conditions have been determined and are easy to find out. There is no excuse for numerous violations of good practice in these matters; their neglect is certainly not profitable, and in any case is only an indication of bad management.

The factory of a few years ago was hard to distinguish from a jail. I once visited a Massachusetts cotton factory, dating from the early days of the industry. It was a massive, stone building with occasional windows too deep-set and dirty to be serviceable for either light or ventilation. The air was so humid and oppressive that a visit of an hour left a feeling of depression. Not far away was a modern mill, the walls of which were nearly all glass and which was filled with up-to-date equipment. I was not surprised to learn that even higher wages and lower production were not able to keep up the labor force in the old mill, and that the building was soon to be discarded.

Noise and Accidents

Noise was once considered a negligible and necessary accompaniment of industry. It was not thought to have any effect on fatigue or production. "They are used to it and don't notice it," was the common explanation of its effect upon the workers. When knowledge took the place of guesswork, however, it was found that sickness and accidents decreased and production increased with the removal of noise.²

Closer study of accidents has shown that their happening is generally not accidental, but obeys well-established laws. They are most frequent during the hours of greatest fatigue, when the light is poorest,³ or when the worker is first em-

² Josephine Goldmark, *Fatigue and Efficiency*, 1917, p. 71.

³ E. E. Purinton, *Personal Efficiency in Business*, 1919, p. 47.

ployed. A chart of accidents according to the age of the injured shows a peak at about twenty-five, then a gradual decline until, in the later forties, when muscles and senses grow less acute and responsive, the curve rises again.⁴

The prevention of accidents is a field for employee co-operation which even the most backward of managements have entered. A safety committee of employees, given genuine co-operation from the management, will do more than any other single force to prevent accidents.⁵ The enactment of compensation laws, factory inspection, and the development of safety devices have standardized accident prevention until there is no longer any excuse for making the industrial field more dangerous than a battlefield. Yet it still remains true that each year the number of persons killed and crippled in industry is larger than the number killed and wounded in the entire American Expeditionary Force, and that there are occupations, to enter which, is to undergo greater risk of injury and death than followed enlistment in the most active division of that force. Analysis of these accidents shows that

⁴ Fifth Annual Conference National Association Corporation Schools Report, pp. 331, 332.

⁵ "There is a striking unanimity in the form of organization for efficient safety work. The original movement in 1906 resulted in the formation of shop committees; as soon as it was realized that the problem was one of the education of the workman and that his interest must be aroused, means were sought to turn the problem over directly to him, and I believe the first safety committee was organized at the South Chicago plant of the Illinois Steel Co. Shop committees—the workmen themselves—were given charge of the safety work. It was their duty to investigate the cause of each accident, fix its responsibility, and make recommendations for a prevention of its recurrence. In addition they were to make regular inspections of the plants, and by their foresight and recommendations were to prevent, as far as possible, the recurrence of accidents."—A. H. Young, *Industrial Personnel Relations*, *Mechanical Engineering*, July, 1919, p. 581.

See also Report of Committee on Safety, Hygiene and Co-operation to Third Annual Conference of National Association of Corporation Schools, pp. 784-824.

An excellent authoritative discussion of accidents in industry is found in Public Health Bulletin No. 106, Comparison of an Eight-Hour Plant and a Ten-Hour Plant.

most of them are still due to defects in management.⁶ Until such defects are remedied, any plant director should be ashamed to talk of welfare.

Plant Environment and Artistic Sense

Properly constructed buildings forestall many undesirable and unprofitable features of employment. So far has standardization advanced in this field that no industrial management is justified, either from financial or human considerations, in building a plant without consulting expert engineers and arranging the layout so that work may be done with the least possible fatigue and the greatest possible safety and comfort, with some thought, also, of agreeable surroundings. There is neither a federal nor state law, nor municipal ordinance, in this nation requiring industry to be conducted in hideous, barrack-like buildings, although a visitor from another planet might think the contrary. In some French cities the law insists upon certain standards of beauty as well as comfort in industrial structures. This matter directly affects efficient production. American industry suffers greatly from a lack of the recognition of the value of beauty. French industry, in spite of defective organization, less use of power, and the practice of many backward methods, leads the world

⁶ "Safety protection in its broadest sense covers not only protection from grave dangers, but from anything that might have a harmful effect upon the worker's body and mind. The standard to be set is that everything should be safe, not only when the work is done by experienced adult workers, but even should it be done by inexperienced, immature or tired workers. We know how many accidents happen to the inexperienced worker that would never happen to the experienced worker. We all know how many children are hurt, where an older person would see and avoid danger; and we note every day, more and more clearly, that the exhausted worker is to an enormous extent more susceptible to accidents than the rested worker. It is usually the tired motorman who has the collision. The tired locomotive engineer passes the stop signal. The exhausted motorist is in the accident. The tired operator gets his finger caught in the machine. The overtired sickroom attendant gives the wrong medicine."—F. B. and Lillian M. Gilbreth, *Fatigue Study*, 1916, p. 85.

in many lines because it knows and follows the laws of beauty. American industry will some day awake to the fact that the opportunity to design and make beautiful things amid beautiful surroundings is not only the foundation of that gratification of the instinct of craftsmanship which lies at the basis of satisfactory industrial relations, but is also the surest foundation upon which to build international trade.

The workers compose the largest section of the market for nearly all goods. If they are trained by their work and their surroundings to appreciate beauty, then they will make beautiful things and will buy no other. This is the only method by which that most valuable industrial asset, a national artistic sense, can be created. The money expended in landscape gardening, in erecting fine-looking buildings and creating an atmosphere of good taste around a factory, will come back many times and in many and devious ways. The worker who is justly proud of the plant in which he works and the product that comes from his hands is a valuable industrial asset. Any other type of worker is a liability to all concerned, and most of all to himself.

Overwork and Nervous Strain

When the environment has been made as attractive as is profitably possible, there will still remain much to be done to make the work itself pleasant before the limit of profitable improvement is reached. The worker and society are interested in a lifetime of work and not in any shorter, more intensive, period. Moreover, the worker wishes that productive life to be as long as possible. That present-day industry offers a danger to this standard is suggested by the statement of E. E. Rittenhouse, president of the Life Extension Institute, that, "there is a marked decline in the power of American workers to withstand the strain of modern life. They wear out sooner than they did a few years ago. The

chances of death after reaching the prime of life have increased because of the extraordinary increase in the death-rate from the breaking down of the heart, kidneys, and of the nervous and digestive systems." That the death-rate in all nations varies inversely with income and is highest among manual laborers, indicates that there is some relation between overwork and short lives, and that industry is not so organized as to secure the longest possible productive period from its personnel.

This position is confirmed by a statement of Irving Fisher, of Yale University (Senate Document 419, p. 669):

The economic waste from undue fatigue is probably much greater than the waste from serious illness. We have seen that the average illness per capita is usually about two weeks per year. This is about four per cent of the year. Expressed differently about four per cent of the population is constantly sick. On the other hand the number that suffer partial disability through undue fatigue certainly constitute the great majority of the population. No observer can fail to conclude that this is true of the American working, business and professional classes, and the latest word among students of school hygiene is that it is true to a large extent even among children. . . . Yet if only 50 per cent of the population are suffering an impairment equal to only ten per cent of its working powers, the result is equivalent to five per cent of the population suffering total impairment.

The Laws of Fatigue

Production engineers know that most of this fatigue is unnecessary. A study of the laws of fatigue is essential to any intelligent treatment of human welfare in industry. Through the elaborate studies and experiments of Italian and French physiologists, supplemented by investigations of scientists and engineers in this country, the most important of these laws have been discovered and formulated. They have been

summarized by Jules Amar, the French scientist, as follows:⁷

1. The expenditure of energy is in proportion to the muscular effort of contraction, to its duration, and to the degree of contraction.

2. The expenditure of energy required to perform a given amount of work diminishes in proportion as the rapidity of the muscular contractions increases. But this is true only within certain limits of speed, beyond which nervous exhaustion will ensue, together with profound physiological disturbances. . . . A rapid rate of work is permissible only when it does not overload the organs of circulation and respiration. Under such conditions speed is really economical. Modern industry, which demands the qualities of skill and speed far more than strength, should confine itself to those economical speeds, of which the Taylor system suspected the existence, although it could not state what they were.

3. There is a most favorable effort and a most favorable speed for the performance of the maximum of work with the minimum of effort. . . .

4. A muscle returns more speedily to its condition of repose in proportion as its work has been more rapidly performed. This law, formulated in 1910, is entirely comparable to the law of the cooling of heated bodies. . . . Similarly the consumption of oxygen, which expresses the expenditure of energy, decreases progressively from the termination of the work until the condition of repose is regained, and this decrease proceeds rapidly, the return to the initial condition occurring quickly when the work has been strenuous—of course within certain limits. The law of this decrease enables us to determine the interval of rest which is necessary on each occasion to restore the physiological conditions which obtained at the outset, and to divide the work into reasonable shifts. In this way a large daily output will be obtained without impairing the resistance of the organism.

⁷ Jules Amar, *The Physiology of Industrial Organization*, 1919, pp. 98-102, *et passim*. The first three laws are by Chaveau, the fourth by Amar.

In discussing these laws Amar very properly observes:

The whole science of human labor is condensed in these four laws, and the whole art of working, together with the whole of physical education, resides in their application. Duly to proportion effort and pace, to enforce intervals of repose—this is the secret of normal activity, exempt from overwork, and, what is even better, favorable to the complete development of the functions of life. Whether in physical or intellectual exertion, everything is a question of measure, of discipline; that is to say of order and harmony.

Cause of Fatigue

Every form of work for the welfare of labor should be guided by the knowledge of these laws of fatigue and recovery. We know that fatigue is a deadly disease when pushed to extremes. It is due to the creation of a poisonous toxin thrown off by an exhausted muscle, and carried by the blood throughout the body. A few drops of this toxin, taken from the blood of an exhausted animal and injected into the blood vessels of another and entirely fresh animal, will cause the latter immediately to show all the symptoms of fatigue. Until this toxin has been eliminated by proper rest and recreation, the person in whose veins such poisoned blood circulates is a sick person.⁸ The need for this alternate work and recreation is the scientific foundation of all genuine welfare work. After all has been done that is possible to make the work itself pleasant, healthful, and efficient there still remains a certain amount of purely normal and necessary fatigue. Such fatigue is injurious only if it is permitted to accumulate. To prevent such accumulation there must be an alternation of work and rest. If the rhythm of such alternation is properly maintained, the human machine can run through a long lifetime without injury.

⁸ J. B. Watson, *Psychology from the Standpoint of a Behaviorist*, 1919, p. 168; also pp. 167, 168 on laws of fatigue.

Rhythm of Work and Rest

This relation of rhythm to life and labor is vividly set forth by Josephine Goldmark: ⁹

The reason why rhythm makes work easier as well as more enjoyable is that in any given tempo, each effort is followed by a corresponding rest. There is perfect balance of swing and recovery, rise and fall, exertion and repose—"primal chimes" as Emerson, the lover of rhythm, calls them:

Primal chimes of sun and shade
Of sound and echo, man and maid. . . .
For Nature beats in perfect tune,
And rounds with rhythm her every rune.

If such a balance could be permanently established in work, fatigue would never occur. Such a condition exists in the physiological rhythm of the heart and respiratory muscles, which function unceasingly through life, alternating work and rest, work and rest. In its steady rhythmic tempo the heart relaxes at each contraction, exerting energy estimated at about 20,000 kilogrammeters in one day.

Thus we are physiologically attuned to rhythm. It is our common heritage. The injury of highly speeded machine work lies, as we have said, in this, that the mechanical, rapid rhythm of machinery dominates the human agent, whatever be his natural rate of rhythmic tendency. The machine sets the tempo; the worker must keep to it.

Not only is the beat of the machine much more rapid and regular than the more elastic human rhythms, it is often wholly lost in the chaos of different rhythms of the various machines, belts and pulleys in one workroom. The roar and vibration of the machinery tends further to distract any sense of rhythm on the part of the worker.

⁹ Josephine Goldmark, *Fatigue and Efficiency*, 1917, pp. 81, 82. See especially *Rhythm in Industry*, Health Bulletin No. 106, pp. 200-210. P. S. Florence, *Use of Factory Statistics in Investigation of Industrial Fatigue*.

This law of rhythm is further re-enforced by certain features of the laws of fatigue. Italian investigators have proved that work done after fatigue sets in requires a much greater expenditure of nervous energy than work done before fatigue supervenes. That is, fatigue becomes rapidly cumulative. If this process continues until muscles are exhausted, the period for recuperation is several times as great as if frequent rest intervals had alternated with work at high speed. "If work is reduced one-half, the period of necessary rest can actually be reduced half or three-quarters as much again. Thus, if 30 contractions exhaust the finger muscle so that it needs two hours' rest, 15 contractions require, not one hour, but only half an hour for recuperation."¹⁰ It has also been shown that work done after fatigue sets in is not only done with greater effort, but that much less can be accomplished; moreover, if the work is of a kind that involves judgment, it is apt to be of poorer quality.

With these laws, as with other natural laws, the consequences of violation are not avoided because the laws are not known. "Ignorance of the law excuses no one." Welfare is largely a matter of organized recreation and rest—of care for health, amusement, and recovery from fatigue. Unless such care is based upon a knowledge of the laws of fatigue it is apt to do as much harm as good.

The study of fatigue plainly indicates that short hours are more productive than the long working day, and that even the shortest day that is yet customary in industry will be more productive if interspersed with short compulsory rest periods. This conclusion is in line with the tabulated results of experiments everywhere. More and more the value is being recognized of short five- to fifteen-minute rest periods,¹¹ with

¹⁰ Josephine Goldmark, *Fatigue and Efficiency*, 1917, pp. 33, 34.

¹¹ *Factory*, Nov. 1918, pp. 842-845. Details of experiments by 50 prants with various forms of short rest periods; United States Bureau of Labor

calisthenic movements for office workers and music or pictures for manual laborers. Such intervals of relaxation will be truly recreatory and of much more value than similar entertainments at the end of the day or in the evening.

The Organization of Amusement

The organization of pleasure, either in such short rest periods or in the longer ones at the end of the day or the week, affords an opportunity for the formation of clubs of various kinds, gymnasium classes, and other forms of social activity usually associated with welfare work. The World War taught the possibilities of organized recreation. The methods that were so valuable in maintaining morale in war will produce the same results in industry. The work of community amusement now being developed through social centers, the public schools, parks, and similar institutions shows the very great value and joy that may be derived from leadership, organization, and intelligent direction of group amusement. Here is a splendid opportunity to arouse group solidarity. Human beings prefer to play together. Here is the field for rival baseball clubs and similar organizations, between which there can be encouraged the sharpest competition—a competition that may find a healthy reflection in industry.

There will be little joy or response if the organization of amusement is paternalistic, interfering, and autocratic. No one likes to have things done for him, no matter how much he may need them. This is especially true of intimate personal things like the organization of play, the care of health, etc. The people of America will for years be feeling a sort of hurt wonder at the lack of gratitude, and even friendship, from the peoples whom we fed and clothed and cared for through the Red Cross and relief commissions during the

Great War. It is always so. A few years ago a friend of mine, on returning from a Cuban trip, bitterly berated the Cubans because they were not friendly to the United States, after it had cleaned up their cities, built sewage systems, abolished yellow fever, and established law and order. "How would you like it," I asked, "if kind neighbors cleaned up your back yard, gave your house a scrubbing, punished your children for fighting, and tried to settle a dispute between you and your wife?" The instincts of independence and self-assertion are more powerful than are those of submission and loyalty. It is well that it is so, as much of human progress is due to the fact that it is more fun as well as more blessed to give than to receive.

A few years ago a great employers' association introduced an elaborate system of welfare work, with clubs and smoking-rooms for the sailors of the Great Lakes. At the same time war was declared upon the sailors' union. To this day, few things arouse as fervid a display of a sailor's sulphuric vocabulary as a reference to that welfare system. Finally, a bitter strike was waged to secure the abolition of the plan that was intended to buy the good-will of the sailors.¹² Any sort of intimate welfare work, dealing with amusement, health care, accident prevention, or other personal affairs, must be under joint management, or entire labor management, if it is to form a permanent foundation for industrial good-will.

Care for Health

Closely akin to relief from fatigue, is care for the health. This is one of the first fields of welfare activity. Studies of the amount of sickness show that between six and fourteen days are lost by each worker annually, and all observers agree

¹² *Monthly Review of the Bureau of Labor Statistics*, April, 1918, pp. 257-259.

that about half of this could be prevented by proper care. Since the direct expense in wages for this sickness is more than half a billion dollars annually, and indirect expenses are still greater, the amount which can be saved by proper health precautions is far greater than any such precautions would cost. To such economy must also be added a sum, probably equally large, resulting from the increased productive power of those who are at present at work but are not well.

The employment of a physician and nurse, with physical examinations at the time of hiring, and the maintenance of plant hospitals and first-aid stations are becoming matters of good plant practice almost everywhere.¹³ Where these examinations are made periodically and form the basis of simple instruction in first aid and hygiene, the work is more practical than when confined to the treatment of injuries and illness, preventive measures being always more profitable than curative measures. First aid and health instruction are closely allied to safety work, and should therefore be organized by more or less employee-controlled bodies.¹⁴

The Industrial Physician

Out of this work is growing a new department of medical care and the new occupation of "industrial physician." For this profession a training much wider than that required for ordinary practice is demanded. There must be a knowledge of employment problems, and especially of employment psychology. More and more we are coming to realize that many of the problems of industry call for the special knowledge of the psychiatrist.¹⁵ The physician who is engaged in

¹³ Bureau of Labor Statistics, United States Department of Labor, Bulletin No. 250, pp. 14-32.

¹⁴ Bureau of Labor Statistics, United States Department of Labor, Bulletin No. 250, pp. 16-18; Public Health Bulletin No. 99, Studies of the Medical and Surgical Care of Industrial Workers.

¹⁵ Stanley Cobb, Applications of Psychiatry to Industrial Hygiene,

industrial work should be familiar with the latest researches in the field of the operation of human instincts, in the laws of fatigue, the technique and theory of psychological tests, and the phenomena of group as well as individual psychology.

The introduction of the psychologist and the psychiatrist into industry is throwing new light upon a multitude of problems concerning which analogous work in the army has given much new information. A case in point is that of the large number of soldiers who fell victims to nervous disorders.

A striking number of the histories showed that in civil life these men drifted from one employment to another, never breaking down enough to consult a physician, but adding their numbers to the shifting, inefficient labor element so costly to employers. It took the rigor of army life, with no possibility of escape by moving on, to bring out their symptoms. Before these people have left their work or have been fired for inefficiency, they should have been interviewed by some one competent to understand them and their probable troubles. At such times advice from a physician, the loan of some money, a visit to a sick child or wife, or any of the thousand possible personal and individual aids, might save the worker from becoming soured, keep him from joining the ranks of the discontented and prevent the development of a litigant and paranoid personality.¹⁶

Essentials of Plant Hygiene

A recent report of the United States Public Health Service, after a careful analysis of industrial medical care, makes four recommendations as to the essential foundation for such work:¹⁷

Journal of Industrial Hygiene, Nov. 1919, pp. 343-347, summarized in *Monthly Labor Review*, Jan. 1920, pp. 226-229; E. E. Southard, *The Mental Hygiene of Industry*, *Industrial Management*, February, 1920, pp. 101, 102.

¹⁶ Stanley Cobb, *Applications of Psychiatry to Industrial Hygiene*, *Journal of Industrial Hygiene*, Nov. 1919, quoted in *Monthly Labor Review*, Jan. 1920, p. 228.

¹⁷ Public Health Bulletin No. 99. Studies of the Medical and Surgical

1. That standards be formulated for vocational requirements, physical examination of workers, vocational placement of workers, working conditions, maintenance of health among workers, medical and surgical practices in industry, and systems for recording and reporting morbidity statistics, conditions of sanitation, etc., in industrial plants.

2. That medical colleges provide courses in industrial sanitation and hygiene.

3. That knowledge of industrial hygiene be spread among the medical profession, industrial physicians, and employers and industrial workers.

4. That provision be made so that industrial establishments may readily secure industrial physicians, sanitarians and nurses.

In such broad measures for the care of health there is an opportunity for all the economies of group action and a solid basis for group solidarity. The most common objection on the part of labor to welfare work is expressed in the frequent statement, "put it in the pay envelopes and we'll buy our own fun." But the amount which will buy much fun and care, if expended as a single group sum for many persons, would amount to but very little if divided and "put in the pay envelopes."

Health and Life Insurance

The advantage of co-operation is even greater in the administration of health and life insurance. The firm can buy such insurance for an entire industrial group for much less than the rate charged to the individuals. Moreover, an incidental benefit results from the introduction of group life and sickness insurance. The companies that sell such insurance insist upon standard conditions of employment that are somewhat above the average. Many pension, sick, and death

benefit plans are also operated as part of various welfare systems.¹⁸ It should be borne in mind, however, that wherever such plans punish an employee for leaving, withholding any part of legitimate benefits of funds to which he has contributed, even in part, the result is apt to arouse hostility rather than good-will. Gratitude, loyalty, and least of all good-will, cannot be forced. They must be earned, and deserved.¹⁹

Restaurants and Other Facilities

The operation of restaurants and lunchrooms constitutes another method of taking advantage of group power in buying and handling material and services. Money spent in this way will buy more and better food than the same amount distributed in the pay envelopes of the individual employees would enable them to purchase.²⁰

Education is closely linked up with training, which has already been discussed. Lockers, washrooms, and toilet facilities, are standardized until there is no excuse for poor practice in these regards. The organization of clubrooms, gymnasiums, etc., is part of the work of recreation which should not be considered until a group spirit has been created by good employment practice, and until working conditions are

¹⁸Welfare Work for Employees in Industrial Establishments in the United States Bureau of Labor Statistics, Bulletin No. 250, pp. 100-112. Full discussion of all forms of disability funds, pensions, and group insurance.

¹⁹"Organized labor is opposed to group insurance and for the same reasons that it is opposed to employers' welfare plans in general. . . . It is asserted that it 'ties a man to the job' and is aimed at or tends to prevent the organization of labor or to weaken it and defeat its economic ends—higher wages, shorter hours, and better working conditions. And, again, it is said that it will place a premium on the physical examination of workmen and the rejection or possibly the discharge of the least desirable risks among them so as to keep the premium down to a minimum."—Illinois Health Insurance Commission, Report for 1919, p. 139. (Contains full discussion of all phases of subject.)

²⁰Bulletin Bureau of Labor Statistics, No. 250, pp. 53-67.

such as to insure their use. There have been many instances of almost luxurious clubhouses seldom visited by the employees. Before they can be considered of value, it should be certain that the facilities they afford cannot be better furnished by outside agencies, organizations, or the community.²¹

The Housing Problem

Housing is a pressing problem all over the world, as this is written.²² Whether providing houses for its workers is a proper function for an industrial organization must depend upon circumstances. There have been some bad experiments made in this direction. I visited Pullman in the late nineties while the embers of the great industrial conflict engendered by that paternalistic plan were still glowing, and nowhere have I seen such concentrated hatred against an employer. One man explained it by saying that there was but one object to curse for everything—the company. If the gas was poor, the sewage defective, the water bad, the plumbing broken, the company was to blame. Its meddling regulations and merciless exploitation had driven many employees to a neighboring city, where housing conditions were less satisfactory but mental freedom was greater. The most satisfactory solution of employer participation in the housing problem is for the company to purchase the land and then encourage the formation of a building and loan association to finance building, under complete control of the employees, with no greater restrictions upon building operations than are usually insisted upon in a high-class residence district.

Co-operative Buying

In an effort to meet the high cost of living, many firms introduce what they call co-operative stores. Few are rightly

²¹ Bulletin Bureau of Labor Statistics, No. 250, pp. 68-86.

²² N. W. Shefferman, *Employment Methods*, 1920, Chap. XXX.

so named, as they are mostly buying clubs. The company lends the capital with which goods are purchased at wholesale and sold at cost. This plan, however, has failed thousands of times. It runs through a regular course. The plan begins with enthusiastic support, then passes through a period of suspicion into one of suspended animation, and dies a lingering death; or the company grows tired and puts it out of its misery. It arouses the antagonism of local tradesmen, who fight it with sales of "leaders" that foster suspicion that the firm is not playing fair. Wholesalers object and will usually raise prices to prevent sales at cost. Then the end is close.

The only successful form of co-operation is the old and tested Rochdale plan, under which some of the largest businesses in the world are now conducted. Under this plan goods are sold at market rates, while the resulting profits are distributed at regular intervals as dividends to buyers in proportion to their purchases. This plan starts slowly, but gains strength and value with age. Its management is entirely in the hands of employees, and it soon becomes independent of any subsidy.

Future Field of Welfare Work

Although it has not yet become a common practice in welfare work, it is probable that the most fruitful field in the future will be co-operation with existing social agencies. Something has been accomplished in this direction through the Y. M. C. A., K. of C., Y. W. C. A., and similar organizations, but even these organizations have shown a tendency to specialize as agents of the employer rather than to extend their regular work among industrial employees. They are also apt to practice an aggravating sort of "glad-hand paternalism" that arouses resentment. The fundamental welfare work must be done through such established public institutions as schools, libraries, social centers, neighborhood

associations, etc. Co-operation with organizations for community music, play, and education in public social centers is of more value than purely plant organizations. Full utilization of public library facilities, including the package libraries now so generally available, supplemented by a special technical plant library, touches deeper and more fundamental human instincts and insures a wider response than any purely plant activity.²³

Firm influence in furthering improved housing, paving, sewage, lighting, school, and amusement facilities in the plant neighborhood lays the basis for real solidarity of action. The average plant owner and most of the executive force live remote from the factory, in pleasant, residence districts. They concern themselves little with plant surroundings unless to fight improvements that would raise taxes in the locality where their wealth is produced. The firm that recognizes its power and duty to build up the neighborhood where its plant is located, and to contribute to better housing, public service, and amusement facilities in co-operation with its employees, will lay a stronger and deeper foundation for industrial goodwill than it would if many thousands of dollars were invested in ordinary welfare work.

The effect of welfare work in arousing industrial good-

²³ "A government investigation published in 1919 showed that 57 establishments, in which employers paid all expenses, had nearly 190,000 volumes in their libraries at the disposal of approximately 210,000 employees. Libraries containing from a few hundred to many thousand volumes are maintained by boot and shoe factories, clothing and furnishing establishments, foundries and machine shops, public utilities (gas, electric light and power), iron and steel mills, coal mines, printing and publishing plants, stores, and rubber goods factories. While books are usually furnished by the employer, they are occasionally provided by the employees' clubs. Another method of securing books, frequently used, is by cooperation with the local public library, which in many cases has established branches in factories, or taken orders for books to be delivered the next day. Some plants make use of traveling collections of books furnished by the state."—*Industrial Information Service*, Apr. 1, 1920, p. 12. For bibliography and discussion of plant libraries, see *Special Libraries*, Oct. 1919.

will depends upon the depth, width, and indirection of the appeal; the number of instincts to which appeal is made; the extent to which co-operation displaces paternalism; and the extent to which science and not sentimentality rules. The welfare work of the future must be directed by trained scientists, thoroughly familiar with the natural laws of fatigue, health, labor, and leisure. They must know the best standards of plant practice in every direction, must be skilled in co-operative leadership, and schooled in the knowledge of the working of those deep-lying instincts upon which human nature is built.

CHAPTER XII

THE WAGE RELATION

Fossilized Wage Theories

While it is no longer true that the only tie holding together the elements of industry is Carlyle's "cash nexus," yet the wage relation is still fundamental. It is the point around which the hottest conflict will always rage. The wage system makes the division of the industrial profit a question of relative strength; hence the difficulty of fixing any rules for that division.

Political economists have evolved and discarded many wage theories, most of which are of but incidental interest in practical employment work. Only as these have been deposited in the geological layers of "common sense" and then dug up, fossilized, to be used as weapons in discussion, have they become of interest. One of these theories which has been especially useful, or at least has been much used for argumentative purposes, is the wage-fund theory, best stated by John Stuart Mill, easily the foremost economist of the middle years of the nineteenth century. Mill, in a famous controversy with Thompson, repudiated his own theory and admitted himself defeated in the argument, but his repudiation did not prevent the use of his theory for many years afterwards. Indeed, it is still quite frequently found as the half-understood working hypothesis of much of the current discussion of the wage relation.

The wage-fund theory—to state it briefly and somewhat crudely—holds that, in the process of production, a certain definite fund is almost automatically set aside for wages. This

sum, the theory teaches, cannot be increased or diminished by any human action, and least of all can it be affected by any action of the wage-earners through organization. Therefore the first use of this theory in popular wage discussion was to prove the hopelessness of labor's organizing to increase wages.

When unions did very plainly raise wages and prove the theory false, it was not discarded, but on the contrary was promptly imputed to the wage-earners themselves as a motive for restricting production. The opponents of organized labor now charge that unionists act upon the wage-fund theory and seek to restrict production for fear there will not be work enough to go around. Of course this theory has become somewhat disfigured in the process of death, fossilization, and disinterment as a weapon. In the beginning, the theory held that wages were limited; now it is work. But the theory is equally false and equally foolish in either case, and was never accepted by any spokesman for organized or unorganized labor.¹

Theory of Marginal Utility

The Austrian economists, Menger, Boehm-Bawerk, and Von Wieser, worked out another theory, called the "marginal utility" theory. As this is applied to wages, it may be roughly stated to hold that since a certain number of persons are absolutely required to produce a necessary supply of commodities, wages are fixed by the worker using the poorest machinery, land, and methods, whose product is necessary to the supply. Although this theory is held in some form or other by most orthodox political economists today, it probably has little relation to the facts and is of little value in practical wage discussions.

¹ Sidney Webb, *The Works Manager of Today*, 1918, p. 58.

Another theory holds that wages are fixed by the average amount of labor required to dig a dollar's worth of gold.²

Wages and Standards of Living

The largely unexpressed theory upon which most of the discussions of wages turn, is that wages are fixed by bargaining under the influence of supply and demand. In its original form this theory held that the minimum wage limit was a subsistence for the worker; the maximum, the entire product. The actual wage of certain classes of labor was many times pushed below the minimum essential to even a normal length of physical existence. Workers and their children did not subsist. Their abnormally high death-rate proved the murderous character of the minimum. Surveys made by the Children's Bureau of the United States Department of Labor show that in Johnstown, Pennsylvania, "for all live babies born in wedlock the infant mortality rate is 130.7." (This is the number dying annually per 1,000.) "It rises to 255.7 when the father earns less than \$521 a year or less than \$10 a week, and falls to 84 when he earns \$1,200 or more, or if his earnings are 'ample.'" Identical results obtained through similar investigations in Montclair, N. J., Manchester, N. H., Waterbury, Conn., and Brockton, Mass., verify the conclusions and prove that such wages are deadly to everything desirable in society.

Out of various phases of this wage bargaining, a series of standards are being developed. In many cases these are crystallizing, first into custom, then sometimes into law, and are backed by an ever-growing force of public opinion. These standards are setting limits to pure bargaining. They are narrowing the operation of the principle—or the custom—of wage determination by fighting strength.

² Bulletin of Taylor Society, Jan. 1915, p. 1.

Standard Minimum Budget

The minimum wage is becoming more definite. It is no longer being determined only by post-mortem examinations of death-rates and statistics of sickness and pauperism. It is being fixed in advance by standard budgets. The technique of fixing budgets was first worked out by a long series of minute studies for philanthropic organizations, then for public and private institutions, and finally to fix legal minimum wages for women. Such methods have been used in so large a number of wage disputes that their employment may now be considered a standardized practice. It is noteworthy that the standard minimum budget is constantly rising in accordance with a constantly increasing production and general rise in the standard of living. Whereas the first standards provided only for bare physical subsistence, it is now felt that any standard that does not provide for good, productive citizenship is not socially desirable.

High Cost of Low Wages

More and more we are coming to see that the maximum wage also will constantly rise, and that it will probably reach heights not now thought possible. The maximum is fixed by the amount produced, less the sum required to induce the investment of capital and the various necessary overhead expenses. Recently accountants have been looking very closely into the nature and necessity of some of the items in that famous blanket, overhead. Like charity, it covers a multitude of sins of management.

The substitution of knowledge for guesswork in management is teaching that there is an economy of high wages that profits those who pay as well as those who receive. Efficient industrial organizers know that low wages do not necessarily mean low cost of production. The fear of competition from low-wage industries and countries is seen to be largely, if not

entirely, an imaginary bogey. When Asiatic nations entered upon the machine age, something like a panic swept over western nations. It was feared that the low wages of India, China, and Japan would enable those nations to dominate the markets of the world. We know now that danger from the competition of these nations will not be great so long as they do pay such low wages. When their wages reach the western level, then their production costs will fall to western standards.

Wages are cheap or expensive, measured in production costs, according to the efficiency they buy. An illustration and explanation by William R. Basset helps to make this point clear:³

Before the war the sailors on the Great Lakes had higher wages than anywhere in the world, and yet the cost per ton mile of freight on the lakes was cheaper than anywhere in the world—because the boats and the docks were built to give the largest possible turnover in cargoes.

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There is no reason in the world that a common worker should not make one hundred and fifty dollars a week—if he does that much work. And it is the combined fault of the employer and the employee if he does not do that much work. But the fault of neither is chronic. If both regard a wage increase as something to add to cost, and not as a step toward cheapening the product, then the raise is wrong. Raising human costs to save eventual costs sounds paradoxical, but that is the trend of scientific industry, and marks the passage of the worker from slave to fellow-artisan and of the owner from blind to enlightened manufacturing.

The United States Tariff Board found that “the labor cost of making a ton of news-print paper in the United States

³ W. R. Basset, *When the Workmen Help You Manage*, 1919, pp. 65, 68.

varied from \$2.19 to \$7.26 per ton. The most remarkable fact about it was that the mills paying the lowest wages and having a twelve hour day, had a higher labor cost per ton of paper than those paying the highest rates of wages and having an eight hour day." ⁴ The difference was in efficiency. Low wages are the refuge and the excuse of the lazy and incompetent manager.

High Wages and Efficiency

William C. Redfield, former Secretary of Commerce, in his book, "The New Industrial Day," gives page after page of illustrations of the high cost of low wages. He finds that this law prevails in every industry and in every section of the world. American railroads pay wages five times as high as those of Europe, are not especially well managed as measured by high efficiency standards, but carry freight at less per ton mile. American automobile competition became the bugaboo of the world only after Henry Ford taught it this lesson of the economy of high wages. Today, with wages from three to ten times those paid to better mechanics in the factories of France, Italy, and Great Britain, this country, because of its high wages, produces automobiles at less than half the cost in any of those countries. Because of the lack of skilled mechanics and artistic craftsmen, American automobiles are not all of as high technical grade as those of Europe. This only emphasizes another defect in management—the lack of adequate technical training.

High Wages and Prosperity

High wages provide a partial security against panics. There are more theories of business cycles than of wages, but

⁴United States Tariff Board Report on Pulp and News-Print Paper Industry, 1911, p. 39; quoted by N. I. Stone in *Survey*, Feb. 6, 1915, and in *Annals of the American Academy*, No. 174, p. 124. See also, The

they nearly all agree that at least an aggravating cause of depressions is the maladjustment of production to marketing, due to the difference between the purchasing power of labor measured by wages and the productive power measured by output. High wages help to adjust this discrepancy. A 10 per cent increase in wages in the United States adds a larger "foreign market" than is now furnished by all the nations with which we trade. Moreover, it is the stupendous home market, with its vast uniform demand, that called forth the system of standardized production upon which any superiority that American industry enjoys now rests. This point was recognized by the Committee on Industrial Relations of the Chamber of Commerce of the United States in its report issued, April 16, 1919: ⁵

That wages should be kept adjusted to their purchasing power is important from another point of view. Wide markets are essential to industrial success where industrial achievement is in great output at low cost. Such markets are created by workers as consumers. The great domestic markets of the United States are made by the workers. Per capita they consume more of the products of industry, and in greater variety, than the people of any comparable country. When industry itself is based upon the ability of wage-earners to buy its products, it is dependent upon the purchasing power of the wage being unimpaired. An abundance of consumable articles with purchasers ready to acquire them brings prosperity.

Constantly rising wages demand ever-increasing efficiency on the part of the worker, based on constantly improving opportunity for education and training. In order to educate himself and his children, the worker needs ever higher wages,

Wage-Setting Process, Federal Board for Vocational Education, Bulletin No. 44, *passim*.

⁵ Bulletin of Taylor Society, Oct. 1919, p. 31.

and thus the cycle is completed and another begun. An example of the operation of this law was seen in the almost frenzied rush to educational institutions during the high wage period of reconstruction. For the first time, all educational facilities were utilized to more than capacity. Adults poured into schools, patronized extension, night, and correspondence departments, and grasped eagerly at opportunities for plant training. The receipt of high wages gave health, energy, ambition, and opportunity to gain power, to produce more, and thus to secure yet higher wages.

Wages and Piece-Rates

Shall wages be paid by time or piece? It is commonly charged that labor always opposes piece-wages. The truth is that such powerful unions as those of the miners and cigar-makers, with several others, insist upon piece-wages. There is no fixed line of division on this question.⁶ Each party takes the position which it believes will give it the advantage in a particular bargain. In most of the metal-working trades, and in such machine industries as are subject to rapid change in methods, labor objects to piece-rates and employers seek

⁶ "It is often assumed that workmen, and especially Trade Unionists, object to piecework. So far is this from being the case that the average workman usually prefers to get the chance of working by the piece, and, apart from transport services, and the general labourers, a majority of the Trade Unions in Great Britain absolutely insist upon this method of remuneration. Nor is it true that employers invariably desire to pay by the piece. . . . However, it is quite true that, in the engineering, building, and woodworking trades, or at least in most of their branches, the employers and managers have not yet invented any system of Payment by Results which the great majority of the British workmen will agree to accept.

.....
"What the instructed workman and the properly led Trade Union object to is not piecework as such, or any other form of Payment by Results, but *every such system that is unaccompanied, not only by an accurate equivalence of the basic 'Standard Time' with the Standard Time Rate, but also by quite definite security for the future maintenance of the standard rate of remuneration for effort.*"—Sidney Webb, The Works Manager of Today, 1918, pp. 56-58, 62. (Italics in original.)

to install them. The reasons are peculiar to these industries. The conditions of production are only partially under the control of the worker, far less than in those trades where there is a remnant of handicraftsmanship, as in cigar-making. It is difficult to fix a standard. It is easy to cut rates. Of course some employers insist that they never cut rates. To such as these the following statement of John R. Commons, showing the absolute impossibility of avoiding rate-cutting, is respectfully recommended: ⁷

Piece-rates *must be cut* sooner or later, or else either industry will stagnate, or wage-earners will get all of the gain from improvements and none will go to the consumer and the employer, or else the employer will be driven out of business by competition. Piece-rate cutting is universal. What is meant when it is denied is perhaps that the cutting is not done *arbitrarily*. This is a question of fact, of definition, of opinion. The cutting must be done—the question is how, and how often.

There is no answer to this argument. Progress is certainly inevitable and desirable in invention and industry, but its effects must be shared by the whole community. The answer usually made to the above argument is that a new process, machine, or change in method requires the setting of a “new” rate and not the cutting of the previous one. The distinction is too fine to be readily appreciated by the workman who makes the improvement. Nevertheless it is one that must be made, and scientific management, as we shall shortly see, makes its plea for consideration largely on the ground of its ability to draw such a line of distinction.

In a changing industry, the worker feels that the ability arbitrarily to set and cut piece-rates is vested so largely in

⁷ John R. Commons, *Industrial Goodwill*, 1919, p. 8. Italics in original.

the employer, and so often used, that it gives him an unfair advantage in the wage bargain.⁸

Objection to Payment by Results

There is also a largely unexpressed feeling among workers that payment by results is destructive of that group solidarity which is really so essential to industry and to the social welfare. This position is set forth by John A. Hobson in far plainer language than any spokesman for labor has ever stated it:⁹

The fundamental assumption of the Labor Movement, in its demands for reformed remuneration, is that the private human needs of a working family should be regularly and securely met out of weekly pay. The life and the health of the family, and that sense of security which is essential to sound character and regular habits, to the exercise of reasonable foresight, and the formation and execution of reasonable plans, all hinge upon this central demand for a sufficiency and regularity of weekly income based upon the human needs of a family.

This explains alike the working-class objections to piece-work, the demand for a minimum wage, and policy of limitation of individual output. For piece-work, even more than time-work is based upon a total ignoring of the human

⁸ "It must be remembered that, even where the workmen have learned to trust the present principals in an establishment, who promise them that rates shall never, under any circumstances, be cut, the workmen (a) are never offered any legally binding guarantee to that effect (which would, indeed, be almost impossible to contrive), so that there is no assurance that the employer may not subsequently change his mind; (b) are not afforded any opportunity of controlling or even of verifying the basis on which the changing rates are from time to time actually computed—a position of helplessness in which the employer would never dream of placing himself with regard to the most reputable and most trustworthy contractor for materials; and (c) are offered no protection for the future maintenance of the rates in the event of a change of management or proprietorship, perhaps the merger of the firm in a giant concern which is known to make a practice of rate-cutting."—Sidney Webb, *The Works Manager of Today*, 1918, p. 71.

⁹ J. A. Hobson, *Work and Wealth*, 1914, pp. 192, 193.

conditions which affect the giving out of labor power. It is the plainest and most logical assertion of the commodity view of labor, the most complete denial that the human needs of the worker have any claim to determine what he should be paid.

So firmly rooted in the breast of the ordinary non-working man and of many working men, is the notion that a man who has produced twice as large an output as another man, ought, as a simple matter of right or justice, to receive a payment twice as large, that it is difficult to dislodge it. It represents the greatest triumph of the business point of view over humanity. If a man has done twice as much, of course he ought to receive twice as much! It seems an ethical truism. And yet I venture to assume that it has nothing ethical in it. It has assumed this moral guise because of a deep distrust of human nature which it expresses. How will you get a man to do his best unless you pay him according to the amount he does? It is a purely practical consideration that has imposed upon the piece-work system the appearance of axiomatic justice.

It is not difficult to strip off the spurious ethics of the principle. You say that piece-wages or payment by result is right because it induces men to do their best. But what do we mean by "doing their best"? A weak man may hew one ton of coal while a strong man may hew two. Has not the former "done his best" equally with the latter? The strength of a strong man, the natural or even the acquired skill of a skilful man, cannot be assumed as personal merit which deserves reward in the terms of payment. If there is merit anywhere, it is in the effort, not in the achievement or product, and piece-wages measure only the latter.

No! there is nothing inherently just in the piece-wage system. Its real defense is that it is the most practical way of getting men to work as hard as they can: it is an effective check on skulking and sugaring. It assumes that no other effective motive can be made operative in business except quantity of payment.

The application of the point of view which Hobson sets forth would require a fundamental transformation of the

entire system of personnel relations in industry. It would seem to demand as a prerequisite an interest in the work itself, a thorough good-will toward industry, and a thorough understanding of reciprocal duties in the industrial group. It is at least suggestive that the best work of the world, today and always, has never been paid on the basis of measured and immediate results. The physician, artist, teacher, manager—indeed the whole class of professional and managerial workers—are paid salaries, not wages, with more than the day as a unit and with results measured by long-time standards.

Standards for Wage Determination

The opposition to piece-wages is not confined to idealists, economists, and certain trade unionists. Harrington Emerson, one of the best known efficiency engineers, says:¹⁰

Piece-wages are physiologically and equitably vicious and wrong. They put a premium on harmful strenuousness, instead of standardizing working conditions and operations so that greater output will follow less effort, but higher efficiency per unit of time; they are based on the assumption that output is dependent on muscular energy as it was in former ages, instead of being dependent on a steadily increasing quantity of uncarinate energy, combined with a steadily decreasing quantity of incarnate energy, both directed by a steadily increasing intelligence.

Emerson is arguing against piece-wages fixed without standard time, motion, and fatigue studies. The discovery and application of the laws of scientific management are crowding, one by one, the methods of wage determination, based upon rule-of-thumb, guesswork, and strength-testing, into a narrower field. These methods have not yet been eliminated,

¹⁰ Harrington Emerson, *The Twelve Principles of Efficiency*, 1917, p. 225.

but the scope of their operation is being encroached upon from every side. It is not alone that the maximum and the minimum are being more closely determined by the publicity of more accurately drawn cost accounting. Within this narrowing field of bargaining, facts, tested and standardized, are being substituted for guesses, and careful weighing of evidence for crude conflicts of strength. Employers and labor organizations make elaborate investigations of standards of living and movements of price. Both sides make ever more frequent appeals to compilations of such statistics prepared and published by the United States Bureau of Labor Statistics. In some industries, joint arrangements are made for an impartial referee, who shall consider these facts at regular intervals and make decisions upon them according to fixed and agreed-upon standards of judgment.

Management versus Employee Efficiency

Two important unknown quantities appear in every equation dealing with the wage problem. These are the respective contributions and capacities of the employer and the employee. Powerful class interests have sought to keep these quantities unknown. Each side prefers to fight, rather than submit the truth concerning its claims to impartial judgment. Some of the questions that must be answered before an intelligent appraisal of these claims can be made are: What is the standard of efficiency? What reward is necessary to secure that accumulation of capital essential to the maintenance and growth of industry? Is labor using the most efficient machinery and methods of production? If not, who is to blame in each instance? Are the employees producing to full capacity, consistent with the laws of work, fatigue, and health? Scientific management is seeking the answers to these questions.

Contrary to the popular impression, scientific manage-

ment directs its sharpest criticism against the inefficiency of employers. Harrington Emerson declares that:

American organization for operation, whether governmental (army, naval, civil), whether state or municipal, whether for land-railroads or ocean-steamboats, whether educational or religious, whether industrial or commercial, proves on investigation to be inefficient, often disgracefully so, the efficiency of the output of men of militia age of the country being not more than 5 per cent, the efficiency of use of materials being not more than 60 per cent, the efficiency of equipment facilities not averaging 30 per cent. These inefficiency statements can be verified from the facts, by competent experts, as readily as an assayer can duplicate the assay of an ore sample.¹¹

It is this inefficiency which limits wages. Until employers are approaching 100 per cent efficiency in their use of material, machinery, and organization, they have no equitable grounds upon which to reproach labor for failing to produce to the limit.

Scientific Management and Production Cost

Scientific management rests upon the establishment of standards and the verification of facts, with their classification and analysis, making possible a prediction as to results. This accuracy is what makes theory and practice scientific.

Shorn of all non-essentials, the underlying idea of scientific management is the predetermination of results and the standardization of methods and conditions. Instead of working to more or less nebulous ends, under scientific management definite ideals are established and all efforts concentrated toward the attainment of these ideals by the adoption of standardized methods.¹²

¹¹ Harrington Emerson, *The Twelve Principles of Efficiency*, 1917, pp. 27, 28.

¹² G. C. Harrison, *Cost Accounting to Aid Production*, *Industrial Management*, Apr. 1919.

Frederick W. Taylor always insisted that scientific management is primarily a mental revolution on the part of both employers and employees.¹³ He held that all else was subordinate to the adoption of the scientific attitude of mind on the part of the persons engaged in industry. If these persons could only be made to see the possibilities of carefully planned utilization of all productive energies, there would be little left to quarrel over. Such a planned management would create so great a product that the ambitions and desires of all concerned could be gratified.¹⁴

Without accepting quite such an idealistic attitude, it remains true that scientific management makes possible such a steady increase in production as to permit a constantly and rapidly improving condition of all producers, and a continuous reduction in cost to consumers.

Edward D. Jones enumerates the technical phases of scientific management as follows:¹⁵

1. The management must be responsible for all managerial functions.

¹³F. W. Taylor, *Government Efficiency*, Bulletin of Taylor Society, Dec. 1916, p. 16; *Principles of Scientific Management*, pp. 130-132.

¹⁴"If you will take the cost of the raw materials and then add to it that cost which is frequently called by various names—overhead expense, general expense; that is the proper share of taxes, insurance, light, heat, salaries of officers and advertising—and you have a sum of money. Subtract that sum from the selling price, and what is left over is called the surplus. It is over this surplus that all the disputes in the past have occurred. The workman naturally wants all he can get. His wages come out of that surplus. The manufacturer wants all he can get in the shape of profits, and it is from the division of this surplus that all the labor disputes have come in the past—the equitable division. The new outlook that comes under scientific management is this: The workmen, after many object lessons, come to see, and the management comes to see that this surplus can be made so great, providing both sides will stop their pulling apart, will stop their fighting and push as hard as they can to get as cheap an output as possible, that there is no occasion to quarrel. Each side can get more than ever before. The acknowledgment of this fact represents a complete mental revolution."—F. W. Taylor, *Government Efficiency*, Bulletin of Taylor Society, Dec. 1916.

¹⁵E. D. Jones, *Administration of Industrial Enterprises*, 1916, p. 135.

2. An increased administrative staff must be provided, to perform the wide range of functions connected with the planning and the supervision of performance.

3. Planning should be carried on in advance of, and distinct from, performance.

4. A new group of standards should be formulated for the control of the conditions of equipment, and the regulation of the time, place and manner of performance. Standard times involve a schedule of events. A schedule necessitates systematic routing, so that the whereabouts of the work may be known at all times. These standards should result, finally, in the assignment to each person daily of a definite and clearly circumscribed task.

5. Select persons who possess special aptitudes for the task assigned to them.

6. Individualize records of performance, and furnish prompt information as to results.

7. Remuneration should be in accordance with individual performance.

Time and Motion Study

When all possible has been done to insure the maintenance of high standards of efficiency in the use of machinery, planning of work, routing of material, adjustment of departments, and organization of management, the next step is to consider the task and reward of the individual employee. This, the most talked about phase, involves a careful analysis of the time taken to make, in the most effective way, the absolutely necessary motions required for the work. Such analysis involves much more than merely standing by a workman with a stop-watch and noting how long it takes him to do a certain job, and then using these figures to set a rate. This is done in thousands of plants under the name of "time and motion study." Yet it has no more to do with scientific management than physiognomy and phrenology have to do with scientific selection of workers.

Proper time and motion study requires that each motion

be analyzed into its simplest elements, and the time necessary for its performance should be carefully measured. This may require the use of a motion picture camera, or other method of measuring motions much more accurately and rapidly than is possible with a stop-watch. A good workman will make many motions more quickly than an observer can stop and start a stop-watch. A rapid typist will make a half dozen motions in a fraction of a second.

When such measurements of elementary motions have been made, the combination into a completed process is carefully studied, to ascertain what motions may be omitted or shortened, and the resulting conclusion is subjected to experiment in actual work. The best method is then taught to the entire force, allowances are made for fatigue, and the rate is fixed in accordance with the ascertained productive power. In practice, a certain rate of wages is taken as a "base rate," and is guaranteed to all workers. Then there are various systems of bonus payments for those who reach or exceed the rates fixed.¹⁶

Efficiency versus Strenuousness

All writers on scientific management are unanimous in their assertion that the task fixed must not be one that will wear out the worker.¹⁷ Norris A. Brisco thus contrasts efficiency and strenuousness:¹⁸

¹⁶ H. S. Person, *Scientific Management*, Bulletin of Taylor Society, Oct. 1919, article prepared for *Encyclopedia Americana*.

¹⁷ "The primary object of scientific methods of management is to increase the productive capacity of a man or a machine, to reduce eventually the cost of the product to the consumer, and at the same time to increase the remuneration of the worker. This must be accomplished not by mere speeding up. It must be done by so arranging the work of the man as to eliminate the unnecessary operation and the waste time and teach him to perform each necessary operation in the best manner possible."—S. E. Thompson, *Time Study and Task Work Explained*, in *Business Statistics*, edited by Melvin T. Copeland, 1917, p. 443.

¹⁸ N. A. Brisco, *Economics of Efficiency*, 1914, pp. 37, 38.

Strenuousness and efficiency are not synonyms, but are antagonistic in meaning. The former stands for the putting forth of extra effort, while the latter stands for conservation of human energy. Strenuousness overtaxes the strength, but efficiency conserves it. The former brings greater results with greater efforts, while the latter brings greater results with lessened efforts, through the elimination of unnecessary movements and the proper direction of energy. The efficiency pace is one which the worker can maintain from day to day without extra physical, mental or nervous strain. It is the pace of continuous work, and the one which does not overtax strength or impair health. The strenuous pace is the spurt of a short time, which cannot long be maintained without causing an extra strain upon the human system, undue fatigue, and, if continued, impaired health.

Unfortunately this standard has often been neglected in practice. Mere pace-making has frequently been indulged in under the disguise of scientific management. The result was the antagonizing of labor and a heavy setback to scientific methods. When the co-operation of labor is secured at every point (and there can be no scientific time and motion study without such whole-hearted co-operation), and when labor has an equal voice in fixing tasks and rates, labor is showing a full appreciation of the value of scientific management.¹⁹

Base Rate and Bonus Systems

When the task has been determined by exact measurements and tested standards, the problem once more recurs of the fixing of wages. The early exponents of scientific management, in spite of all their protestations of accuracy and their really valuable contributions, still did much guessing. The very base rate upon which all their calculations rested was admittedly only the customary rate.²⁰ The study of

¹⁹ J. W. Love, *Teamwork in Cleveland Garment Industry*, *Survey*, Apr. 3, 1920, p. 24. See also p. 312.

²⁰ "Positive management accepts the wage current in the community

budgets and standards of living, already fully discussed, make possible the application of scientific methods to the determination of this base. It must henceforth be the minimum essential to the maintenance of a proper citizenship. Upon such a foundation it will then be possible to discuss the erection of bonus systems.

Though there are a great variety of these bonus systems,²¹ they are all based upon one general plan. All guarantee the base rate to all who are employed. Each worker is then given a bonus for all production above this, according to a rate based upon the proper daily task as determined by time and motion study. He is also given all possible assistance, through instruction, routing of work, etc., in securing this bonus. In the original plan, the bonus was paid only for quantity. Closer analysis showed that quantity, even with the best possible management, is still not entirely under the control of the

as its basic wage, and so long as general conditions remain substantially the same, considers that this wage should be paid uniformly to all workmen for an ordinary day's work. Some of its practitioners may question theoretically the justice of these rates. While their theories have not been apparently thoroughly reasoned out, nor stated with any great clearness, there appears to be among them a feeling that basic rates should be related to each other in proportion to the disagreeableness, sacrifice, or 'cost' of different occupations, scientifically determined. One proposes that this determination shall be made upon the basis of foot-pounds of energy expended, another on the relative total disagreeableness or irksomeness of jobs. These theories are not pressed very insistently, however, nor is there much tendency to question the justice of current rates. On the whole they are felt to depend upon some rather hazy law of 'supply and demand'; and in any case the validity of this law, if there is any, is outside the practical scope of a scientific manager's business. He accepts current wages as they are, as the basis on which to build a differential payment for differences in ability."—G. B. Thompson, *Relation of Scientific Management to Labor*, *Quarterly Journal of Economics*, Feb. 1916, p. 145; R. F. Hoxie, *Scientific Management and Labor*, 1915, pp. 63, 64; *The Wage-Setting Process*, Federal Board for Vocational Education Bulletin No. 44, pp. 13, 14.

²¹ For description of various systems see E. D. Jones, *Administration of Industrial Enterprises*, 1916, Chaps. XIII, XIV; W. H. Leffingwell, *Scientific Office Management*, 1917, Chap. XXIII; *Wage-Setting Process*, Bulletin No. 44, Federal Board for Vocational Education, pp. 23-30.

employee, and that the most careful time study still left many variable elements not calculated.²²

Emphasis on Quality Production

On the other hand, quality is determined to a far greater extent by the employee. Quality also appeals to the instinct of craftsmanship. Bonus for quality has less of the appearance of rushing and grasping for profits. For all these, and some other reasons, there is a decided tendency to transfer the standard for the granting of a bonus from quantity to quality.²³ It seems quite probable that the best plan in the future will be to give a reward for both quantity and quality, but to make the quantity element less prominent in determining the rate. It has been found that where quality is emphasized, quantity automatically increases.

²² R. F. Hoxie, *Scientific Management and Labor*, 1915, pp. 40-55, discusses the lack of scientific accuracy in time and motion study as commonly practiced. W. R. Basset, *When Workmen Help You Manage*, 1919, p. 48, gives the following principles which should govern any bonus system:

1. Extreme simplicity, so that the details may be readily understood by every worker; any element of doubt as to fairness (arising perhaps only from lack of understanding) will kill co-operation.

2. It must be obvious that the reward is the result of effort and skill, and the reward must follow with such swiftness in its increase of earnings that the effort and reward will in effect be synonymous. A remote reward kills sustained effort.

3. The method must be thoroughly sold to the people; and if the method cannot be sold it is bad, no matter how many points of merit in it may appeal to the scientific mind.

4. The initial rates should be fixed in conjunction with a committee of those affected, and the basis should be a scientific time study, every point of which is understood and approved by the committee.

5. The initial rates should be regarded as experimental, and all rates should always be open to easy revision, by and with the committee on rates.

6. The foremen or other officers directly in contact with the job should have nothing to do with the rate-fixing or rate-changing, and the complaints against rates should be handed to the committee and not to the foremen. The foremen are directors of work and not of wages.

²³ S. E. Thompson, in *Bulletin of Taylor Society*, Oct. 1916, p. 9; P. F. O'Shea, *Securing Quality by a Bonus*, *Factory*, Dec. 1918, pp. 1061-1064.

The first exponents of the Taylor system were inclined to lay all emphasis upon the quantity reward for a task basis.²⁴ That the advocates of scientific management are fully aware that the best work is not done under such a bargain, is seen in a sentence from the report of H. K. Hathaway, treasurer of the Taylor Society, defining the standard of admission to that society: "It is desirable to so safeguard membership as to confine it to those who unqualifiedly stand for the principle set forth by Frederick W. Taylor—who are true followers and who conform to the unwritten code of ethics which Taylor observed and wished his followers to observe: 'I can no longer afford to work for money.' " It has not always occurred to all the members of the Taylor Society that other workmen might find pride in producing for other than money rewards. Recent proceedings of the society show that the trend is now all away from the original emphasis on a quantity bonus.²⁵

Profit-Sharing Plans

For many years employers have sought a short-cut to industrial peace and efficiency through some form of profit-sharing. The overwhelming majority of these efforts, like most others which seek a way to avoid real responsibility and careful planning, have failed. Walter M. Polakov, tells some of the reasons for these failures: ²⁶

Profit sharing is based on the assumption that the employees by their work contribute to the success of the enterprise in securing profits. This would be entirely correct if the employees were given the opportunity to control all the functions of management, fix the salaries of all directors, direct purchases and sales and have the right of veto in all financial transactions. As long as they are expected, how-

²⁴ F. W. Taylor, *Principles of Scientific Management*, pp. 33, 34, 1911.

²⁵ R. B. Wolf, *Mechanical Engineering*, Dec. 1918; also in *Bulletin of Taylor Society*, Mar. 1917.

²⁶ *Bulletin of Taylor Society*, Jan. 1917.

ever, to work under the conditions provided by the management, with equipment and material furnished by the management, which in turn disposes of the product, the profit or loss is only slightly influenced by the excellence of the work done by the men. Therefore, if the company earns large dividends, the sharing of it with the employees is but a matter of gift for the purpose of keeping peace with the owner's conscience, if it is not a plain case of cowardice in anticipation that the men will rebel when they learn how small were their wages compared with the profits derived from their toil. On the other hand, if the dividends were not declared, the workmen would lose their share, although through no fault of their own, since they might have been working as hard as possible, yet blunders in policy and management ruined the business.

Harrington Emerson, after a study of the subject, concluded that: "Out of the eighteen items of operating costs or manufacturing costs, as distinguished from selling costs, only one is directly influenced by the worker, and that is the time quality of his work. For the other seventeen items the management is partly responsible, but often many of them are beyond the control of either manager or worker—the prices of materials for instance. These are often the largest part of the cost." He therefore concluded that "a profit-sharing plan is not an efficiency reward."²⁷

In actual operation, a profit-sharing plan, unless accompanied by joint management and the greatest possible publicity, is much more apt to breed suspicion and trouble than confidence and good-will. The employees have no means of knowing how efficient is the management; they are not cost accountants, nor trained to analyze financial operations. When profits cease to be shared because of bad times, the employees, who have worked as hard as ever, are very apt to blame and distrust the management.

²⁷ Harrington Emerson, *The Twelve Principles of Efficiency*, 1917, p. 355.

CHAPTER XIII

LABOR TURNOVER

Turnover as an Efficiency Barometer

Labor turnover is the master test of management. Bad management may show in lower production, in deterioration of plant, in poor credit, or in loss of good-will. Any of these things might also be due to some other cause, but no organization with good management will continuously have a high percentage of labor turnover. The rate of turnover is the barometer that tells whether hiring, promotion, production, and general organization and direction of industry are well done. The time is not far distant when a high turnover will be an obstacle to financing and a cause for investigation into the stability of a firm.¹

Methods of Calculating Labor Turnover

The method of calculating turnover is not yet well standardized. The most common standard is the one adopted by

¹ "From the standpoint of workmen as from the standpoint of employers, the turnover is probably the more important as a symptom than as a cost in itself. It is a symptom of inefficient hiring methods which place workmen in positions for which they are unfitted, or for which they are less adapted than for other positions; it is a symptom of severe and disagreeable work; of bad working conditions; of piece rates below a fair level; of inadequate methods of instructing workmen in the job when hired; of defective management, resulting in friction, inefficiency, and often open conflict; of lack of opportunity for workmen to advance on the basis of merit; of poor planning and organization of the work in individual establishments resulting in temporary jobs, an unduly high peak load, and an unduly low load; and of lack of co-ordination and co-operation between industries whose slack and busy seasons dovetail."—S. H. Slichter, *Turnover of Factory Labor*, 1919, p. 159.

the United States Labor Bureau, and used in the calculation of all figures published by the national government. The rules for this standard are as follows:

Labor turnover for any period consists of the number of separations from service during that period. Separations include all quits, discharges, and lay-offs for any reason whatever.

The percentage of labor turnover for any period considered is the ratio of the total number of separations during the period to the average number of employees on the force during that period. The force report gives the number of men actually working each day as shown by the attendance records.

It is recommended that the percentage turnover be computed for each week. All turnover percentages for a week or for any other period should always be reduced to a yearly basis and be reported in terms of percentages per annum.

To compute the percentage of labor turnover for any period find the total separations for the period considered and divide by the average of the number actually working each day throughout the period. Then multiply by the proper factor to reduce to a yearly basis.

The formula under this standard is as follows:

S = Separations

A = Attendance

T = Turnover

$$\text{Then } T = \frac{S}{A}$$

This standard has been rather sharply criticized, and will undoubtedly be replaced in time with a better one. In a discussion in *The Bulletin of the Taylor Society*, for August, 1919, a different formula is proposed.

Criticism is there made of the use of attendance as a

denominator in the equation, on the ground that attendance fluctuates from day to day because of sickness, temperature, holidays, dissipation, condition of work, and various other items; that while these causes should be measured and mended where possible, the problems they present are not properly considered under the head of turnover, and therefore should be treated separately; that accordingly pay-roll should be substituted for attendance as a divisor. These critics disapprove also of the use of separations as a numerator in the equation. They urge that separations in a declining industry do not measure changes, which is the prime purpose of turnover calculations, but rather the rate of decline in production; and accordingly for separations they would substitute replacements, to indicate the number which it is necessary to hire to maintain the force. So readjusted, the formula would read:

$$T = \frac{R}{P} \text{ with } R = \text{Replacements, and } P = \text{Pay-roll}$$

To calculate the turnover for an extended period according to this formula, and to allow for fluctuations in production, the elements of the equation should be determined at weekly intervals and the average pay-roll used as a divisor into the total number of replacements. The formula would then read:

$$T = \frac{R}{\frac{P_1 + P_2 + P_3 + P_n}{N}}$$

R = Replacements

P = Pay-roll

N = Number of pay-rolls used²

² For discussion of computation of turnover see, The Turnover of Labor, Federal Board for Vocational Education, Bulletin No. 46, pp. 31-38. For method of calculation by labor hours see P. F. Brissenden and Emil Frankel, Mobility of Labor in American Industry, *Labor Review*, June, 1920, pp. 36-59.

In all cases the percentage should be reduced to an annual basis and so stated for purposes of comparison. If the fraction is calculated for a week, for example, it should be multiplied by fifty-two.³

Form for Analysis of Problem

Turnover is not a single problem, and therefore cannot be solved by any one panacea. Analysis and diagnosis must first determine what particular phase of the problem demands treatment. To make this analysis automatic in the process of recording, and to insure uniformity for the purpose of comparison and study, a standard blank has been prepared by a committee of the Boston Employment Managers' Association and is given herewith.

The division of "New Employees" into "Experienced," "Learners," and "Laborers," was chosen rather than the terms "Skilled" and "Unskilled," as admitting of more nearly accurate definition. An experienced worker is one who has worked at the trade previous to entering the plant. A learner has not worked at the trade, but is to be trained to skilled work. A laborer expects to continue at what is commonly called unskilled work.

Classification by such a blank reveals the principal causes of turnover and suggests the necessary remedies. It always shows certain classes furnishing the great mass of the turnover. When we say that a plant has a turnover of 150 per cent, what we really mean is something like this: The male office force has a turnover of 15 or 20 per cent; skilled workers, of perhaps 30 per cent; untrained labor, 200 per cent; and the young, recently hired, untrained workers 500 per cent. The records of the personnel department should

³For an elaborate discussion of the mathematics of turnover calculation see Carl Barth, *The Mathematics of Labor Turnover, Industrial Management*, Apr. 1920, pp. 315-318.

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LABOR TURNOVER

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Department..... Foreman..... Month..... Year.....																													
EXITS (CONTINUED)																													
										46	47																		
										Total entrances.	Total exits.																		
										Unavoidable	Death		Date																
										Laid off	Transferred	Occupational causes.	Date																
														Discharged	Physical reasons.	Failed.	Departmental induction.	Pensioned or superannuated.	Marriage (female) or pregnancy.	Exterior causes.									
25	26	27	28	29	30	31	32	33	34	35	36	37	38								39	40	41	42	43	44	45		
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.									
22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	32.	33.	34.	35.	36.	37.	38.	39.	40.	41.	42.									
										Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total									
										Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.									
										Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total									
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										Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.									
										Last day of this month,										Department average for month,									
										Turnover Record																			

show the average length of service of all employees by months for the first year, and by years thereafter. Employment statistics should also be classified as to age and skill of employees, and the departments in which they work. Only after such an analysis do we have the standardized, classified facts which are the foundation of scientific treatment.

Relation of Length of Service to Turnover

An investigation in Detroit, conducted by the United States Department of Labor, disclosed the following:

If a worker remains in the factory three months the chances are two to one that he will be permanent. Of the men hired in Detroit, 21 per cent leave their jobs before they finish one week's work; 15 per cent work less than two weeks; 14 per cent, less than one month; 17 per cent, from one to three months; 11 per cent, three to six months; 8 per cent, six months to one year, and after one year the percentage decreases rapidly from 6 per cent quitting their jobs after working less than two years to 1 per cent quitting after being employed five years."⁴

The methods of dealing with this difficulty have already been discussed in treating of the introduction of the new worker to industry. Much also depends upon the methods of selection. If workers suited to the position, and whom the position suits, are secured, the tremendous waste of the turnover of the first few months can be saved. When it is remembered that the labor of such persons is sometimes worse than valueless, and in all cases is of very much less value than that of older, trained employees, it will be seen that there is ample room for the expenditure of many times the sums now spent on a personnel department before such expense will encroach upon the saving a reduction in this turnover will bring.

⁴Quoted in *Automotive Industries*, Mar. 20, 1919, p. 619.

Problem of Unskilled Labor

The next great class revealed as responsible for turnover is the unskilled. A government investigation covering Cleveland and Detroit found that "the almost unanimous opinion was that the largest turnover was taking place in departments predominantly unskilled, where the bulk of the employees were classed as common labor. The least turnover, it was reported, was taking place mainly 'among the highly skilled employees who were earning big money and had long records of continuous service.' " ⁵

Sumner H. Slichter finds that, "Analysis of the turnover rate among different classes of workmen shows that in general there is an inverse relationship between the degree of skill and the rate of turnover. The higher the degree of skill the lower the rate of turnover. There are exceptions to this rule but in most plants it holds true. Among skilled tradesmen the turnover rarely runs above 50 per cent, and indeed in most cases is below 30 per cent. Among common laborers, on the other hand, the turnover is rarely below 100 per cent and is usually much higher." ⁶

The answer to this phase of the turnover problem is simple in statement, but slow and difficult of realization, namely: Abolish the unskilled. The unskilled worker has no right to remain unskilled. He should be as promptly as possible translated into a happier, more efficient, and socially more desirable, skilled worker. There are no jobs for unskilled workers, as all jobs require some degree of skill. ⁷

Scientific management has demonstrated beyond dispute that there are no unskilled jobs. Sometimes when a manager

⁵ Borris Emmet, *Labor Turnover in Cleveland and Detroit*, *Monthly Labor Review*, Jan. 1919, p. 29.

⁶ S. H. Slichter, *The Turnover of Factory Labor*, 1919, p. 57, *et seq.*

⁷ S. H. Slichter, *The Turnover of Factory Labor*, 1919, p. 333; John Leitch, *Man to Man*, 1919, p. 54.

tells me that he needs only unskilled men and women in his plant, I think there may be one exception to this rule, because so many unskilled men are able at least to hold, if not to fill, the position of manager. Frederick W. Taylor made his first great contribution to management with laborers engaged in picking pigs of iron from the ground, carrying them up an inclined plane, and dropping them on a flat car. His next great achievement was with gangs of shovelers. In both cases he multiplied productivity, decreased the cost of handling, and increased wages by making the work skilled. In the face of this example, and a multitude of similar results in like lines of work, the statement that any job can best be done by unskilled labor is only evidence of lack of good management.

Danger of Illiteracy

Closely analogous to the unskilled are the illiterate and uneducated workers, who everywhere contribute largely to turnover. The remedy is the same as in the case of the unskilled—abolish illiteracy. Some day industry will awake to the fact that it has paid dearly for its neglect of the schools, its failure to prevent illiteracy among natives, and its eagerness to import millions of illiterate immigrants. The demoralization of American industry by these uneducated classes is deeper and more far-reaching than we have hitherto realized. We are beginning to suspect that “cheap immigrant labor” may be the most expensive obtainable and the greatest handicap to American industrial efficiency. Employers welcomed it, in some cases, because of its supposed ignorance, its submissiveness, and lack of ambition. They are awakening to find that it has not merely knowledge, but also revolutionary ambitions that threaten violent action, destructive of the political democracy it does not understand, in search of relief from an industrial autocracy it believes unjust.

We cannot meet this situation with suppression, denuncia-

tion, and deportation. It will require a long and expensive program of education. It will demand experience in, as well as lectures on, democracy. The course that must be taken to meet the problem of the uneducated, native and immigrant, in industry and society, involves an educational scheme of great magnitude. Such a course must be taken; and when it has been carried out, many problems besides the one of the contribution of the ignorant to industrial turnover will be on the way to solution. Enough facts are available to show that all the expense of such a program of education and industrial readjustment can easily be paid for out of the increased production it will bring.

Turnover of Youthful Labor

Child labor is pre-eminently floating labor. This is not wholly bad. The year of wandering that has traditionally followed apprenticeship is a natural gratification of the spirit of unrest in youth. Some of the worst of the sins of ignorance in industrial management, because of the lives they have wrecked, are due to the lack of knowledge of the great instincts that are struggling for helpful expression in youth. These are set forth with keen insight in Jane Addams' "The Spirit of Youth and the City Streets."⁸

We are told that all the activities of primitive man and even those of his more civilized successors may be broadly traced to the impulsion of two elemental appetites. The first drove him to the search for food, the hunt developing into war with neighboring tribes, and finally broadening into barter and modern commerce; the second urged him to secure and protect a mate, developing into domestic life, widening into the building of homes and cities, into the

⁸ Jane Addams, *The Spirit of Youth and the City Streets*, 1912. The whole work is especially valuable on this point. See especially pp. 52, 53 and Chap. V.

cultivation of the arts and a care for beauty. In the life of each boy there comes a time when these primitive instincts urge him to action, when he is himself frightened by their undefined power. . . .

To set his feet in the worn path of civilization is not an easy task, but it may give us a clue for the undertaking to trace his misdeeds to the unrecognized and primitive spirit of adventure corresponding to the old activity of the hunt, of warfare and discovery.

Modern machine industry is peculiarly unfitted to gratify the most pressing instincts of youth. Physiologists, psychologists, and pedagogues agree that what is demanded by the whole nature of youth is adventure and action. The great muscles of the body clamor for exercise, and the smaller muscles and finer nerve actions are not yet ready to function.⁹ Now it is just these activities that are neglected and repressed by modern industry. There is little call for adventure, conquest, struggle, personal achievement, or great motor activity in the machine process.¹⁰ If we repress these instincts we shall produce inevitable and harmful reactions in the form of mischievousness, destructiveness, wandering, and sometimes serious crime—social evils characteristic of this age.

⁹ G. S. Hall, *Adolescence*, 1907, Vol. I, pp. 164, 165.

¹⁰ "Not only have the forms of labor been radically changed within a generation or two, but the basal activities that shaped the body of primitive man have been suddenly swept away by the new methods of modern industry. Even popular sports, games and recreations, so abundant in the early life of all progressive peoples, have been reduced and transformed, and the play age, that once extended on to middle life and often old age, has been restricted. . . . Our industry is no longer under hygienic conditions, and instead of being out of doors, in the country, or of highly diversified kinds, it is now specialized, monotonous, in closed spaces, bad air, and perhaps poor light, especially in cities. . . . Work is rigidly bound to fixed hours, uniform standards, stints and piece-products, and instead of a finished article, each individual now achieves a part of a single process, and knows little of those that precede or follow. Machinery has relieved the large basal muscles and laid more stress upon fine and exact movements that involve nerve strain."—G. S. Hall, *Adolescence*, 1907, Vol. I, p. 166. The whole chapter is good on this point.

Remedy for Youthful Turnover

The remedy is to sublimate these instincts by directing their expression into desirable channels. Relations between education and production must be so adjusted that there is an opportunity for change, without the destructive loss to society and the individual inherent in the present planlessness.

The whole tendency of education and industrial training is now toward meeting this problem of youthful turnover. Individual industries can meet it by approximating the methods being worked out at large in the schools. Training systems giving opportunity for choice and change, with growth clearly made evident and a goal, even though it may sometimes change, clearly defined at each stage, offer the only effective solution of this phase of the turnover question.

Further Analysis of Problem

Every analysis of turnover finds that it varies directly with the conditions of the work. Dirty, dusty, heavy, monotonous, and poorly paid work are all causes of high turnover, and their mere mention suggests the remedy. Night work always shows a larger turnover than day work. It is probable that if this fact were taken into consideration, there would be many instances where continuous operation would prove less profitable than is thought.¹¹

¹¹ "This table clearly shows the turnover of the night force to be about three times greater than that of the day force, and that the former is responsible for a turnover entirely out of proportion to its strength in the organization. Over the three-year period, the night force constituted about 20 per cent of the total working force, but is chargeable with nearly 45 per cent of the total separations. The greater shifting among the night workers causes the turnover figures for the establishments as a whole to appear from 28 to 40 per cent higher than they would be if the changes among the night force were in equal proportion with those of the day force. General dislike for night work, in spite of the fact that wages have been about 20 per cent higher, and the exercise of a somewhat less strict supervision, are stated to have been responsible for the greater turnover of the night force."—Emil Frankel, *Labor Turnover in Cincinnati*, *Monthly Labor Review*, Mar. 1919, p. 40.

The percentage of the whole body of workers that is responsible for the largest percentage of turnover is a small one. There is a drifting body of workers, wandering from job to job and swelling the turnover tables of many plants in the course of a year, that deserves special study. Some of them are excellent workmen. Many of them possess ability in the field of originality that would be of great value to any industry. This body of workers needs closer analysis to determine the methods by which each section of it can best be treated. This analysis will need the help of the psychologist and the psychiatrist in some fields. Some observations made by E. E. Southard, at the psychopathic hospital in Boston, indicate that there are certain mental classes that are particularly contributory to large turnover and that should be studied in order to ascertain the proper treatment.¹²

Maladjustment of Instincts to Environment

It must be remembered that change was the rule in industry until within comparatively recent years. Habits and instincts inbred through centuries by the then existing industrial environment are not easily adjusted to the wholly different conditions of modern industry. G. Stanley Hall summarizes some of these most contrasting characteristics as follows:¹³

For unnumbered generations primitive man in the nomad age wandered, made perhaps annual migrations, and bore heavy burdens, while we ride relatively unencumbered. He tilled the reluctant soil, digging with rude implements where we use machines of many man-power. In the stone, iron and bronze age, he shaped stone and metals, and wrought with infinite pains and effort, products that we buy without even knowledge of the processes by which they are made.

¹² E. E. Southard, *The Mental Hygiene of Industry*, *Industrial Management*, Feb. 1920, pp. 101, 102. Has short bibliography.

¹³ G. S. Hall, *Adolescence*, 1907, Vol. I, p. 167.

As hunter he followed game, and when found, he chased, fought, and overcame it in a struggle perhaps desperate, while we shoot it at a distance with little risk or effort. In warfare he fought hand to hand and eye to eye, while we kill "with as much black powder as can be put in a woman's thimble." He caught and domesticated scores of species of wild animals and taught them to serve him; fished with patience and skill that compensated his crude tools, weapons, implements, and tackle; danced to exhaustion in the service of his gods or in memory of his forebears, imitating every animal, rehearsing all his own activities in mimic form to the point of exhaustion, while we move through a few figures in closed spaces. He dressed hides, wove baskets which we cannot reproduce, and fabrics which we only poorly imitate by machinery, made pottery which set our fashions, played games that invigorated body and soul. His courtship was with feats of prowess, and skill, and meant physical effort and endurance.

It is the physical and mental heir to all this manifold activity that we are trying to tie down to monotonous machine tending. That the process is marked with some friction and resistance on the part of the deeply implanted tendencies of human nature is not surprising. Nor is it certain that it would be well if industry should succeed in conquering and bending that nature to its will. After all, industry exists for man and not the reverse. Therefore we shall find that those things which make industry attractive and reduce turnover are largely those which will gratify the instincts and impulses implanted during this long period that Hall describes.

Effect of Interest in Work on Turnover

How true this is becomes plain from an examination of the "five principal characteristics," which Slichter found of most value in interesting men in work and reducing turnover. They are:¹⁴

¹⁴ S. H. Slichter, *The Turnover of Factory Labor*, 1919, p. 188. See

1. More or less variety. . . .
2. An element of the unexpected, the unknown. To know with absolute certainty what is coming next is dull. The love for the new, the unknown, is universal; it is part of the spirit of adventure which all men possess in large or small degree. . . .
3. The opportunity to exercise initiative, ingenuity, to decide for oneself how to do things rather than have the decisions made for one. It seems an inherent trait in human nature to enjoy having one's resourcefulness appealed to. Problems in themselves exert a fascination. The process of unraveling them and the sense of achievement which comes with success is pleasurable.
4. The ability to see a fairly definite prospect of advancing by merit to better paying or more attractive work.
5. The opportunity to feel pride in one's work and to win the respect and esteem of other men.

We have already considered the methods by which these characteristics can be given to production. They are basic at every point, and nowhere more than in controlling turnover. Indeed, there is little new that need be said under the special subject of turnover if all necessary has been said upon good personnel management. Hiring, promotion, rating, training, welfare, arousing interest—all are remedies for one or more phases of the problem.

This is especially true of the scientific organization of production. Much of turnover everywhere is due to poorly planned shop operation; piece-workers must wait for material, machines are uncared for, large seasonal fluctuations are permitted, and workshops are badly arranged. It is the universal testimony that proper organization of production greatly reduces turnover.

also *The Turnover of Labor*, Federal Board of Vocational Education Bulletin No. 46, pp. 44-58, on methods used by various firms in reducing turnover.

Cost of Labor Turnover

Upon one thing all investigators of this subject are agreed: no expense connected with any proposed method of obviating turnover could cost any important fraction of the sum the present unnecessary changes of personnel impose upon industry. Indeed, nearly all the suggestions for reduction of turnover would, in themselves, increase production and make for greater economy of operation, entirely aside from their effect upon the flow of labor through the plant.

In the now famous study of turnover made by M. W. Alexander, and which was largely responsible for the attention since focused upon the subject, he estimates the cost of each change of an employee at from \$8.50 for the least skilled workers to \$73.50 for highly skilled mechanics.¹⁵ For executives, it is many times the higher sum. Estimates of the total direct waste due to excessive turnover in the United States have varied from \$400,000,000 to a full billion dollars annually.

Yet none of these calculations include an accompanying waste which is probably far greater than the direct cost of hiring, training, breakage, excessive accidents, and other items that are usually included in such computations. This is the immeasurable and incalculable waste due to the fact that no efficient organization of industry is really possible with a constantly changing personnel. Any adequate system of organization is based on permanency.

Turnover expenses appear in many forms and from some rather unexpected sources. New employees swell the accident rates.

In all industries the new men—the “green” men—are most frequently injured. In a large steel plant the accident

¹⁵ *Annals of the American Academy*, May, 1916, pp. 128-144; The Turnover of Labor, Federal Board for Vocational Education, Bulletin No. 46, pp. 12-15.

records show that men employed less than thirty days were injured six times as frequently as those employed longer, and that those employed less than six months were injured four times as frequently as the remainder. These accidents are due not so much to carelessness or foolhardiness as to ignorance of the hazards and the proper way to do the work and hesitancy in asking for instruction.¹⁶

Wastes of Turnover

High turnover leads to inefficiency everywhere. The only reason an old employee is not always recognized as more valuable than a new one is because the management has no adequate cost and production records. Proper management means constant growth of all concerned until the prime of life is passed, and extends that prime further and further.

High turnover curses employer and employee alike. The wandering worker not only loses wages during the period of change. He can build no home during his wanderings. He seldom can grow in skill and enjoy his work. He wastes his earnings in transportation. He undergoes greater danger of accident. Through all these influences he is gradually dragged to a lower mental, moral, and physical level.¹⁷

The tramp population is largely recruited from the excessive turnover due to inefficient management. The burden cast upon the community by increased pauperism, insanity, and criminality due to the endless and useless shifting of labor forces is a heavy one.

Industries with Low Turnover

Certain industries stand out as constant and striking proof that a high turnover is unnecessary. The turnover among

¹⁶ A. H. Young, manager industrial relations of International Harvester Company, Address to School of Safety Engineers in St. Louis, *American Gas Engineering Journal*, Mar. 15, 1919, p. 232.

¹⁷ S. H. Slichter, *The Turnover of Factory Labor*, 1919, p. 142. This whole chapter treats of the cost of labor turnover to the employee.

railroad engineers is but 4.8 per cent, although with firemen and brakemen it is 35.7 per cent.¹⁸ In the civil service of the United States the turnover is but 8 per cent. Among teachers, even at the time of greatest discontent and poorest wages, it did not exceed 20 per cent. Turnover among male office help seldom reaches 20 per cent.

A study of the common characteristics of these very divergent industries shows that they all possess certain features that forestall turnover. All have a careful, standardized system of selection, generally by some sort of impartial examination. The employees are all skilled and educated. Promotion is by some definite and well-understood system of seniority or merit. All other conditions differ. Some have high, others exceptionally low wages. Some require hard physical, others wholly mental work. In none is there any extensive welfare work and few have any sort of bonus or peculiar wage system.

Means of Reducing Turnover

While not belittling the value of wages and welfare to reduce turnover, the lesson of these illustrations would seem to be that other things are much more attractive. The one most characteristic feature of them all is the certain opportunity for continuous growth with the industry. This accords with the conclusion of Sumner H. Slichter, who says:¹⁹

The importance of the lack of a fairly definite prospect of advancing to better paying or more attractive work has been inadequately appreciated. Most men feel the need of a goal to put the zest of the struggle and contest into their work, the hope of better things to-morrow to take their minds off the difficulties of to-day. The factory workman is the same as other men in these respects. Every factor which

¹⁸ S. H. Slichter, *The Turnover of Factory Labor*, 1919, p. 23.

¹⁹ *Ibid.*, pp. 189, 190.

lessens the hope of better things to-morrow renders the hardships of to-day doubly onerous. This is precisely the effect of the failure of employers to follow a definite policy of promoting by merit, which is typical of modern industry.

Good, thorough, general employment practice, such as is attainable only through careful, continuous work, is the most effective way of reducing excessive turnover. As the standards of personnel management rise, the turnover falls.

It should not be hard to reduce turnover. The one thing workmen everywhere desire, in spite of all appearances and occasional actions to the contrary, is a "good, steady job." All the instincts of change that have been noted will give way, under proper management, to the powerful home-making instinct.

There is a possibility of reducing turnover to a point where routine and stagnation to industry and individual might be a result. There is value in new blood for the organization and change for the personnel. Save for a few departments, however, and an occasional most exceptional industry, these dangers are far from threatening. A mere mention of their existence is almost sufficient warning. The remedy is at hand. Change within the industry, education, occasional "promotions up and out" of those who manifestly can find greater opportunities elsewhere, and above all else, plenty of opportunity for the introduction of new ideas to refresh the entire organization, will avoid the evils.²⁰

²⁰ Some of these objections to excessive length of service, and especially to methods of restraining employees which smack of compulsion—such as withholding of special payments for a long period of continuous service—are discussed by Ralph E. Heilman, *Do You Keep Your Men too Long*, *System*, April, 1919.

CHAPTER XIV

WIDER SOCIAL CONTROL

Effect of Outside Forces on Industry

There are forces far beyond the boundaries of the individual shop or business house that affect personnel relations. Every industry operates within a framework of laws, court decisions, and customs. Its foundation rests upon property relations, contracts, wage systems, and legal institutions. These laws and customs spread in ever-widening influence.

The forces that make such laws and customs, while beyond the power of the individual shop manager, are, in a democracy especially, created by a public will of which the entire human personnel of industry is the determining factor. Ignorance of this embracing network blinds the personnel director to some of the most important elements in his problem.

Such a director may think himself little touched by international movements, yet at times these come very close home. Markets are worldwide. Prices are fixed by movements on the other side of the globe. Great international population movements are largely responsible for the present interest in personnel problems. American industry taps every section of the earth in its search for a labor supply, and immigration touches every employment problem. When the war and the social upheavals that accompanied it threw the currents of migration out of their accustomed channels, almost every industry in America felt the effects of a restricted labor supply.

Effect of Environment on Human Nature

Personnel managers must know not only human nature, but human nature as affected by environment. We have

learned that knowledge of human nature is not to be gained by any esoteric insight, any hocus-pocus character analysis, or glib knowledge and pretended application of pseudo-sciences. We know that the foundation of human nature is composed of those instincts which the cultured citizen shares with the primitive savage. To these, however, are added the habits, impulses, customs, and prejudices which environment implants, and which together make up those race characteristics that differentiate peoples and bind together national groups.

The personnel manager who wishes to "know human nature" must be familiar with these race characteristics. He learns them from a study of the social environment that produced them—an environment that is always changing, and changing today faster than ever before. A knowledge of the aspirations, conflicts, and shifting conditions in national and international relations is essential.

International Relations

Certain effects of international relations are becoming more specific. Even before the war, industrial legislation was partially determined by international agreement. Sixteen nations sent official representatives to the International Association for Labor Legislation that met at Lucerne in 1908. The threat of war somewhat reduced the number of nations represented at the conference held in Berne in September, 1913. These meetings of the association shaped the conventions that ended the use of white phosphorous in the manufacture of matches, that drew up the drafts for international agreements to prohibit night work for children under sixteen, and that established a maximum working day of ten hours for women and young persons.¹

¹ *League of Nations*, Vol. II, Oct. 1919, pp. 271-279.

The League of Nations provides for an International Labor Office. Although the United States has not entered the League, the first International Labor Conference was held at Washington in November, 1919. That conference, with almost complete unanimity, adopted a series of conventions concerning labor legislation. Whether the United States continues its policy of isolation or not, it will feel the influence of these conventions. We cannot escape the pressure of organized worldwide opinion.

Certain tendencies in this international movement are clear. They were plainly evident at the Washington conference and had made themselves manifest several years before. They grow stronger and clearer each year, so that no one interested in personnel relations can plan intelligently without taking these tendencies into consideration.

For one thing, the various nations are more closely restricting the labor of women and children. In all probability every industrial nation will soon insist upon eighteen as the minimum age at which regular, compulsory, state education shall cease. Education is constantly broadening its scope to include more vocational and industrial training. Women in industry are everywhere being given more protective care. The conditions under which they work, their hours of labor, their periods of leisure, restrooms, care during illness and especially during motherhood, are all matters receiving attention. Every nation is insisting that the mothers of the race must not be sacrificed to industry. On all these points international action is clear. It is moving toward an ever higher standard as nation after nation comes into line with this tendency.

Universal Eight-Hour Day

Delegate after delegate at the Washington conference presented reports of recent eight-hour legislation. There is

scarcely a nation in the world that has not passed laws restricting the hours of labor. Nearly all of these laws have been passed since the beginning of the war, and most of them since its close. The scope of such legislation is embracing more and more industries and converging upon the eight-hour day. Such a universal tendency is a safe foundation for the prediction that all industry must prepare to operate upon an eight-hour basis. The momentary pressure for production following the war, intense as it was, could not restrain this movement. When that pressure shall pass, the demand for shorter hours will be irresistible.

The Unemployment Problem

The nations of the world are agreeing that the burden of unemployment must not forever rest its full weight upon the employee class. A form of industry that requires a reserve army of deteriorating idlers as a condition of its existence, must at least pay for maintaining that army and for preventing its deterioration to a greater degree than is inevitable. There are many plans looking in this direction. Many nations give unemployed relief either in the form of insurance, subventions to union funds, or by state work. Still more nations have organized systems of national employment offices to adjust the labor supply. Nearly all have undertaken extensive studies of the causes of the industrial cycles that aggravate unemployment, with a view to alleviating or removing their effects. In view of the strong and almost universal pressure for some sort of protection against the evils of unemployment, the personnel director may take it for granted that the time is near when society will intervene in every nation to meet this problem.²

² International Labor Conference, Washington, 1919, Draft Convention on Unemployment, *Monthly Labor Review*, Feb. 1920, pp. 324, 325.

Immigration Problem

Immigration and emigration are essentially international questions. There are few industries in America that they do not directly affect. European members of the International Labor Office are interested in emigration, while America thinks only in terms of immigration. The information that will be circulated by the Labor Office will henceforth have much to do with determining the movements of population.

The greatest single source of information concerning the manifold facts affecting personnel in industry will probably be this International Labor Office. Only a statistical collecting agency that embraces the world and has the resources of many governments, can gather and arrange the facts that will make possible the charting of those great industrial cycles of prosperity and panic. These wide swings and mysterious movements of prices, wages, markets, money, and men make modern business a gamble instead of a science.

National Legislation and Administration

National legislation and administration impinge upon industrial relations at many points. Such topics as control of monopoly, levying of taxes, regulation of interstate commerce, national supervision of banking, and federal injunctions suggest a few of the many ways in which labor relations are closely affected by government action. Direct handling of many wage relations appears imminent. It is already here in transportation and mining. Congress has fixed the conditions of employment on the sea; it has regulated child labor; and Supreme Court decisions plainly tend toward extending the field of congressional power in this direction.

Education was long the exclusive function of state and local governments. Now the nation is entering it in the field closest to industry. The Federal Board for Vocational Education, composed of the Secretaries of Labor, Agriculture, and

Commerce, the Commissioner of Education, and three civilian members representing manufacture, agriculture, and commerce, administers the subsidy granted by the national government to vocational schools. As this subsidy is given only on approval of the course of study, the character of the industrial education of the country is determined by this board.

The board co-operates with training departments of great industries, with the public school system everywhere, and with all persons interested in vocational training and employment management. In so doing it is creating national standards in all these lines of work. It is publishing and distributing, without charge, a large amount of the most valuable educational material in all these fields.³

Industrial Research

Industrial research is a growing field of scientific investigation and information. Hitherto, however, it has been largely a thing of patchwork and shreds. A few large banks, the most progressive advertising agencies, some professional "prognosticators" for investors, here and there an enterprising corporation, the most efficient trade associations, and many other overlapping and competing bodies have been working in this field. Nearly all of their work has been statistical, and will be referred to later. Original investigation of problems of production and of organization of industry, and scientific investigation of machines, materials, and methods have been even more fragmentary and disconnected. Such work has been scattered through the departments dealing with

³See especially, Bulletin No. 43, The Labor Audit; Bulletin No. 44, The Wage Setting Process; Bulletin No. 45, Job Specifications; Bulletin No. 46, The Turnover of Labor; Bulletin No. 47, Industrial Accidents and Their Prevention; Bulletin No. 48, Employment Management and Industrial Training; Bulletin No. 49, The Selection and Placement of Employees; Bulletin No. 50, Employment Management—Its Rise and Scope.

geology, agriculture, forestry, and a score of other widely separated and loosely connected bodies. The creation of the National Research Council during the war indicates a move to centralize and systematize such research. It also brings the government into close touch with industry at many new points. The Committee for Psychology of this council developed the psychological tests used in the army. It has since been adapting these tests to industrial employment.⁴

The Department of Labor

Every phase of personnel work in industry is affected by the work of the Department of Labor. The Secretary of Labor is authorized by the law creating the position to "act as mediator and to appoint commissioners of conciliation in labor disputes whenever in his judgment the interests of industrial peace may require it to be done." This form of work grows in importance steadily. "During the year from July 1, 1918, to June 30, 1919, the Department assigned conciliators to 1,780 cases, made up of 587 strikes, 1,113 disputes and threatened strikes, 63 lockouts and 17 walkouts; of these it succeeded in adjusting 1,223 or 68 per cent."⁵

The Department of Labor administers the immigration laws; it passes upon deportations; it decides upon some phases of the contract labor law. Its actions greatly influence the flow of foreign-born labor. The Bureau of Statistics maintained by the Department is the most important source of information on labor. Its multitudinous publications constitute a continuous and authoritative information service for the personnel worker. The *Monthly Labor Review* is the most valuable periodical in this field. It contains valuable special studies by experts; summaries of all important events;

⁴C. S. Yoakum and R. M. Yerkes, *Mental Tests*, 1920, Introduction.

⁵M. H. Wiseman, *Keeping the Peace with Labor*, *Industrial Management*, Mar. 1920.

the most complete and authoritative tables of wages; prices and index numbers; sample current collective bargains; translations of the most important foreign publications; a critical bibliography of all books and important periodical literature; and a mass of similar information needed for intelligent employment management.

During the war, the Department of Labor was the agency through which the national labor supply was mobilized. This was done by the United States Employment Service. Whatever its defects, this was the first long step toward bringing order out of the chaos of the labor market.⁶

Children's Bureau and Public Health Service

The Children's Bureau is under the Department of Labor. It deals primarily with children below the employment age. Its studies of family life and infant mortality contain the most complete and authoritative information concerning the effect of wages upon living conditions. Its publications are essential to an understanding of the subject of budgets for working-class families, upon which wages are coming more and more to depend for their determination.⁷

One of the most remarkable developments of any government bureau during the war was that of the United States Public Health Service. This operates under the Treasury Department. It has entered upon a campaign for public health and sanitation, and has established a department of industrial hygiene. Already its publications are indispensable to any worker concerned with factory sanitation.⁸

⁶D. D. Lescohier, *The Labor Market*, Chaps. IX-XI, with references, a treatise of the scope and need of a federal employment service.

⁷See especially, *Standards of Child Welfare*, Bureau Publication, No. 60.

⁸See C. D. Selby, *Studies of Medical and Surgical Care of Industrial Workers*, Public Health Bulletin No. 99.

Government Interest in Labor Problems

Government is becoming daily more closely allied to industry. The efficient employment manager, welfare worker, or personnel director must keep in close touch with government publications and work. Otherwise he will be ignorant of some of the most important developments in his profession.

As the national government is the largest employer in the country, the standards governing hiring, promotion, wages, hours, organization, pensions, and general regulation of personnel in the national civil service influence all private employment. They present some helpful suggestions as well as some sharp warnings.

Congress has enacted a Minimum Wage Law and established a Minimum Wage Board for women in the District of Columbia. In October, 1919, this board, after a very elaborate budget study into the cost of living, fixed a wage of \$16.50 per week for "experienced workers" in mercantile establishments.

The government enters more and more directly into the settlement of industrial disputes. It does this not only through the conciliatory work of the Department of Labor, previously mentioned, but also by means of federal injunctions, and by direct legislation in the case of the railroads, the telegraph, and other interstate public utilities. The second Industrial Conference, called by the President, proposed in its report of March 6, 1920, the establishment of elaborate machinery for conciliation and arbitration. The enactment of legislation which may probably be expected to follow would fundamentally change industrial relations.

State Industrial Machinery

In entering this field of industrial adjustment, the national government is but following the path of the states. Thirty-six states have already established machinery for action in

industrial disputes. Such machinery has generally been impractical and remained inactive. A few such boards of arbitration, however, have frequently intervened to the satisfaction of all concerned.⁹

The scarcity of labor that followed the war created a demand for some sort of compulsion to maintain the labor contracts, as such scarcity has always done since the Black Death led to the Statute of Laborers in the fourteenth century. The coal strike led Kansas to create a special "Court of Industrial Relations" to settle strikes. The experience of more than four centuries and a score of nations indicates that such attempts only accentuate and embitter labor controversies.¹⁰ Any legal enforcement of such decisions implies confiscation of capital and enslavement of labor. Industry must continue to rest not upon compulsion but upon mutual good-will.

Tendencies of State Legislation

Workmen's compensation laws are everywhere supplanting the old common law procedure in accidents. This is introducing safety campaigns, group insurance, and closer inspection of factory work. Factory legislation constantly raises the standards of safety, sanitation, and health in industry. Child labor legislation grows stricter. The age at which children without education are barred from labor continually rises. The educational minimum likewise rises and demands new training organizations.

The states also are throwing greater protection about the work of women as well as children. Provision for rest periods, restriction of hours, compulsory seats, and a minimum wage indicate a trend. The firm that anticipates such

⁹ Industrial Information Service, Apr. 22, 1920, pp. 2, 11, 12.

¹⁰ See p. 321.

social action obtains an important advantage over its more grasping and less far-sighted competitors.

Basis of Community Control

Community control is steadily increasing. More and more those interests commonly grouped under the name of "public," because they interweave and overlap in each individual and class, are finding legislative expression. There are points where this control touches directly upon the technique of personnel work. The testing of trade skill, training, public employment offices, and vocational guidance are all coming more and more to be considered as general public functions.

Labor turnover is not a thing of an individual establishment alone. The greatest fluctuations are due to deeper social causes than are touched by a personnel department. Since 1902 "the number of unemployed in cities in the United States (entirely omitting agricultural labor, for which no reliable data are now available) has fluctuated between 1,000,000 and 6,000,000. The least unemployment occurred in 1906-1907, and in 1916-1917, while the most occurred in 1914-1915. The average number unemployed has been two and a half million workers, or nearly ten per cent of the active supply."¹¹

Only by close co-operation of large classes of industry, including governmental undertakings, is it possible to meet this wider problem of labor fluctuations. The first step to this co-operation, from the side of private industry, must come through the field of statistics. In the comparatively recent expansion of the use of graphs and other symbolic forms of expression, statistics have gained a power of expansion comparable to that which algebra brought to mathematics. These graphic presentations aid and add to the power of imagination.

¹¹ Hornell Hart, *Fluctuations in Unemployment in Cities of the United States, 1902-1907, 1908*, pp. 51, 52.

They make possible quick and accurate comparisons, and the projection of lines of complex tendencies into the future.

These methods, so essential to extensive action, call for adequate statistical departments in the individual firms, correlated with appropriate governmental agencies for their general compilation and a "pitiless publicity" that shall make the facts available.

Personnel and Statistical Departments

Personnel and statistical departments must be closely connected through the new methods of accounting. These methods are being adapted to the demands for the power of prediction, social correlation, and increased efficiency. The old system of accounting, sometimes called the "post-mortem" system, and its inability to meet the complex demands of today are thus described by G. Charter Harrison: ¹²

The whole conception of a cost system which concentrates solely on the obtaining of data relative to past results is unsound, belonging to the days when the manufacturer was satisfied if at some time after the end of the year his accountant presented him with a statement showing the annual net profits realized. To be able to operate a business with the maximum degree of safety and profit, before any work is undertaken there should be an intelligent estimate of what its cost will be, this estimate providing a standard of attainment and a definite incentive to economical manufacture.

An adequate system of accounting must take in these wider fields also. Otherwise its prediction will be unreliable. It must be related through the statistical department to the whole field of statistical knowledge. It then becomes part of the machinery by which the personnel department can recommend

¹² G. C. Harrison, Cost Accounting to Aid Production, *Industrial Management*, Oct. 1918.

to the management the action required to meet the wider problems of social and governmental action as related to the individual questions of the firm.

This is but one example of the way in which each institution within the industry must, if it is to fulfil its purpose, present two aspects. One of these is related to the specific firm problems; the other reaches out to the entire world of industrial and social life. More than any other single industrial department, that of personnel is the connecting link between these two aspects.

CHAPTER XV

ORGANIZATION OF THE PERSONNEL DEPARTMENT

Rank of Employment Executive

The foundation of successful personnel organization is the recognition of the fact that men are as important as machines, money, and markets. The personnel director must be placed on an equality with the heads of the departments of finance, production, and sales. The leader and organizer of the human forces needs all the skill and authority that are required for procuring capital and controlling credit, for choosing and placing machines and directing currents of production, or for hunting out and holding the favor of a purchasing public. His acts can build or break a firm even more surely and quickly than those of the heads of these other fields of work.

Harlow S. Person, of the Tuck School at Dartmouth says of the position of such a director: ¹

The best type of employment executive is of as high rank as the works, sales, and financial executives, has as complete and independent access to the office of the president, and has as fully his confidence with regard to the problems of the relation between the management and the personnel as they have with regard to the problems per-

¹H. S. Person, Training of the Employment Executive, *Annals of the American Academy*, May 1916, pp. 119, 120. See especially N. W. Shefferman, *Employment Methods*, 1920, Chap. II, with accompanying diagrams on positions and functions of an employment department; Daniel Bloomfield, *Labor Maintenance*, 1920, pp. 29-39, where many such diagrams are also given.

tinent to their respective functions. If there is an executive board made up of the various functional managers, he is the peer of any man on that board. On that board he sits in a dual capacity: he represents, on the one hand, the desires and rights of the working force, and on the other hand, the desires and rights of the management. He is harmonizer and adjuster. He is the specialist who studies the problems of industrial democracy, organized labor, collective bargaining, employees' consent, and so on, and reports his investigations and conclusions, with recommendations, to that board. The performance of these functions brings him into contact with leaders of the working people, with students of social affairs, and with the highest executives in the management.

Importance of Labor Policy

The employment executive largely determines labor policies. Many firms have hitherto had no policy save the worst of all policies—that of drift. Nowhere is there need of more study, foresight and skill than in planning a labor policy. Long before such questions as the attitude toward unions, collective bargaining, joint management, the eight-hour day, welfare work, and all similar problems become acute a decision for them should be prepared. The decision should not be based upon prejudice, impulse, or imagination, but upon tested, standardized, and classified facts, impartially presented.

William Leiserson indorses the position that : ²

Labor policy is a matter for chief executives. It is the chief executives of the company who must determine the labor policy of a plant. In the past it has been customary for the chief executives to deal only with the production, finance and sales problems. Labor was left as an incidental matter for production superintendents and foremen to

² *Monthly Labor Review*, Oct. 1919.

handle. Only when labor difficulties arose was labor considered important enough for the directors to handle and at such time subordinate officers had already committed the company to a policy that the directors were bound to uphold. Only by determining the labor policies in the board of directors' meetings, where they can be considered in conjunction with production, finance and sales policies, can a proper system of labor relations be devised and kept in constant operation.

Correlation of Labor and Sales Policies

The necessity of correlating employment policy with all other departments of management must constantly be kept in mind.³ A permanent labor policy, involving a low turnover, a regular staff, and systematized promotion is impossible without the co-operation of the sales and production departments. Reduction of seasonal employment is largely up to the sales manager. Realization of the losses due to fluctuations in employment personnel has raised the question of whether the "customer is always right." Extreme adjustment to the market to secure large sales may be less profitable in the end than sticking to more staple production and waiting for the market to adjust itself. In many other ways a sales department can cut down the peaks and raise the valleys of employment fluctuations. It is not apt to do this, however, unless the employment and sales managers meet on equal terms to determine firm policy.

Relation to Production Department

The work of the production and employment departments is closely knit. Planned and routed work is basic to good employment practice. If plant processes are broken and

³ Handbook on Employment Management, United States Shipping Board, Bulletin No. 1, pp. 7, 8; Employment Management, Its Rise and Scope, Federal Board for Vocational Education, Bulletin No. 50, pp. 21, 22.

irregular, labor will be uncertain and discontented. Piece-workers, especially, will not stay where they must wait for material. Day-workers may stay, but that is all they will do. A poorly planned production department is first aid to indifferent workmanship and high turnover. Wage systems are a matter for joint consideration by personnel and production heads. This must be true at every point. The amount, form of payment, method of fixing and every other detail of wage-setting affect the two departments vitally. Time, motion, and fatigue studies depend for their accuracy and their effect upon close co-operation between the two departments. Job analysis, training, and the hiring, promotion, discipline, and discharge of employees demand common action and a joint policy.

Finance and the Personnel Department

Because many of the duties now assumed by the employment department have hitherto been at least partially performed by persons connected with production, the connection between these two departments is more easily seen than between the finance and employment departments. But we have seen that systems of accounting closely affect personnel. We know that the work of the employment manager may build up or destroy credit, and that the tendency to base credit upon employment relations is growing. Financiers are coming to see that plant good-will, as well as market good-will, must be counted among bankable assets.⁴ The accounting and statistical department is a tie that must bind production, finance, sales, and personnel management. All must have a voice in deciding what facts shall be gathered and equal access to all information obtained.

Finance and personnel managers must meet to determine

⁴ See pp. 115, 124.

another point of policy. The successful entrepreneur makes more than the margin of profits. The resulting problem and its solutions in relation to wages is thus discussed in "The Wage Setting Process," a Bulletin of the Federal Board for Vocational Education:

In the good old days of the ruthless captains of industry there was no hesitation; such profits were all sucked up by capital, perhaps by even an inner ring of capital interests. But the public mind has been getting sensitive, so that a great variety of subterfuges of financiering and corporate organization have been invented to disguise the extent of profits in the public eye. It is realized that such profits may be taken by the State through the machinery of taxation. Or, they can be given to the public in the form of lowered prices or improved service, although the attempt to do this results in increased patronage, and so, through lowered costs, works a return of all or part of the benefit, and may even open a vein of entirely new profit. Yet again, excess profits can be given to the wage-earner in improved working conditions, personnel service, and higher wages. But to give these advantages attracts a better class of labor, evokes loyalty, and reduces labor turnover, so that the advantage offered tends to return, like bread upon the waters. . . . It is becoming a sign of poor management and a mark of disgrace to pay low wages.

Manifestly, the question of the apportionment of available assets between wages and profits is one which must be settled by consultation between personnel and finance departments. Whatever policy is adopted in this regard will affect almost every phase of employment management.

Relation to Other Executive Departments

The general subject of the relation of the employment department to other executive departments is thoroughly treated in a report of a committee on organization and ad-

ministration made to the Seventh Annual Conference of the National Association of Corporation Schools, June, 1919:

That a specialized department of executive grade has not been developed generally for the consideration of labor relations, is largely due to a non-realization of the close relationship that exists between the various parts of the problem. Wage systems have been thought of as separate from job analysis, welfare work or profit-sharing; selection of employees has been carried on without thought of its bearing upon development of understudies, adaptability to environment or special fitness for the work to be done. Labor union policies have been adopted without due consideration of their effect upon the internal administration of employee relationships which may have a bearing upon the firm or upon themselves; educational schemes have been devised with slight consideration of the close connection between the training to be given and the methods of promotion, compensation and labor turnover. But the truth is gradually forcing itself upon the attention of the corporations that these problems are all interrelated, and that the only insurance against serious ruptures is the adoption of a method by which all these activities may be carried on under a common administrative policy.

Correlation of Work Within Department

The work of correlation is not wholly with outside departments. Personnel work consists largely in the organization and harmonizing of the elements of work. It knows no panacea. Perhaps the most common weakness of such work is its lack of balance. One firm devotes all attention to philanthropic welfare, another makes a hobby of psychological tests, a third has a fine set of records and an elaborate promotion system. Perhaps none of these policies are accompanied by a job analysis without which their efficient operation is impossible. A fourth has a pet plan of joint management, adopted from a neighbor without regard to its suitability and unac-

accompanied by any of the other essentials of good employment practice. Each firm, if asked, will be sure that it is using up-to-date methods of employment management.

Yet no one of these devices or methods or even all of them together will produce a proper personnel department, unless organized into a single working mechanism. The correctly assembled and correlated whole is not only greater than any of the parts; it is the only machine that will do the work.

Selection, routing, records, promotion, training, transfers, and discipline are all part of one process. The physician who has charge of health and sanitation should also understand and co-operate in the making of psychological tests, psychiatric examinations, fatigue studies, and job analyses. He should direct the making of physical examinations, conduct first-aid classes and co-operate with a safety committee in preventing accidents and occupational diseases. The nurse who works in his department is a most important link, by her visits to the homes, in establishing a mutual understanding.

Medical and safety work are closely connected. A safety committee should be taught the principles of factory inspection and first aid. As the membership of such committees changes, the number so trained grows. The time should soon come when they should be composed of experts in their fields. Their assistance should be frequently invoked in completing a job analysis. It is a general principle that there should be no "water-tight compartments" in the plant, isolated from, and unrelated to, other work. The tie that unites is the human one, and the personnel department deals with every human relation.

Plant Education and Original Research

Education and training are natural subdivisions of the personnel department and are intimately related to selection, grading, promotion, and the cultivation of plant loyalty. One

important feature uniting all such work is the principle that industry must furnish a life career, with constant growth to each person who enters it. Plant training should extend from the removal of illiteracy and the provision for apprenticeship training to the most advanced research work. There are plenty of examples of all phases of such work. Unfortunately it is seldom part of an organized plan in any one industry.

Original research does not necessarily require a university degree for preparation, elaborate laboratories and expensive technical apparatus for its work, nor unintelligible vocabularies to report its results. Nearly all of these factors may be essential accompaniments to the research work of certain industries, but original research itself is something very different and much more fundamental. It consists in adding something to the present stock of human knowledge. This is done just as much by the employee who finds a new way to handle a tool, to build a machine, to perform an industrial process, or to route work through a plant, as by the scientist who discovers a new fact about the operation of the stomach of the parasite on the shell of a fresh-water clam and writes a doctor's thesis thereon. The methods of work and the mental processes are the same in both cases. There is the same necessary knowledge of previous standards, the same careful examination of facts and their relations, and the same testing of results. A committee formed to hunt out possible improvements in shop practice, while it will probably use quite a different vocabulary, works in much the same way as a graduate seminar. When it is properly organized, the similarity will be more striking. The same enthusiasm will develop and the results will be at least equally valuable.

Equipment for Plant Education

A personnel director bears much the same relation to a training department as the president of a university does

to that institution. He is not expected to know all the branches taught, but he should know when good work is being done and where to get competent teachers. He should also see that the equipment for plant education is available. This equipment includes a library, proper periodicals, and such information service as may be needed. It is his business to see that these facilities are used. There is a technique of their distribution, assignment, and handling that, if used, greatly increases their value. Much of this work is now highly specialized. In some fields it would not be profitable for any ordinary industry to retain permanently the expert service needed to establish correct methods. The personnel director should know where such expert service is required, where it can be obtained, and how it can best be used.

The House Organ

The house organ is an efficient means of correlating all plant activities, furthering educational work, arousing group interest, and disseminating the results of original research. Only within very recent years have the possibilities of such organs begun to be appreciated. We are yet far from utilizing these possibilities to their full capacity. Too many of these organs are still filled with "jollyng," "inspirational" baby-talk that disgusts, or platitudinous preaching that insults the intelligence and revolts the instinct of self-respect.⁵ The staff of such an organ should be drawn from the working force of the plant. An expert newspaper man should be called in to teach the fundamental principles of reporting, copy reading,

⁵ "Those plant magazines which are successful are built of, for and by the men themselves. The ones that fall short of their purpose are often made up of inspirational talks, 'welfare stuff,' laudation of the company and plant comics."—Ray Dickinson, *Using Art and Type to Build Industrial Morale*, *Printer's Ink*, Feb. 1920, pp. 24-26. The article is an excellent study of the house organ of the Hydraulic Pressed Steel Company.

make-up, and editorial writing. He should not determine policy nor material, unless he has had special experience in the industrial field.

The house organ should be thoroughly departmentalized in plan, although perhaps not in make-up. It should co-operate with and strengthen the work of the "suggestion box" or research department; contribute to group interest by uniting the history of the firm, the industry, and the various products to the work on hand; and furnish the actual news of the industrial group. It should have its social and athletic departments, its open forum, and its editorial page. Its contents should not be assembled as a scrapbook is assembled, but should be balanced, correlated, and organized as is any good periodical.

The Personnel Director's Job

A personnel directorship is a man's sized job. Of course it is sometimes adequately filled by a woman. The more the job is studied, the larger it appears. Robert G. Valentine has made a job analysis of the position, and listed some of its qualifications:⁶

Don't be led away by the size of the job when I say that the head of the personnel division of a concern must be actively in touch with economic, industrial, social and political forces of the day; he must be alive to the meaning of trade unionism; he must be able to distinguish between its constructive meaning and its destructive meannesses. He must be equally ready to admit the meannesses of his fellow managers and anxious about their constructive side. He must be alive to the trend of even the humblest business toward a status in the public service, for the public character that our railroads have taken will be rapidly followed by an effective public interest in the foods we eat and from

⁶ Bulletin of Taylor Society, Jan. 1915.

which we are individually powerless to bar the poison. I am not asking that the personnel manager shall approve of these things. It is not a question of approval or disapproval, but he must be alive to them. So he must be alive to the growth of cooperation, to the real contribution of the trusts, to the growth of consumer's controls, to the backwardness of our educational system as a whole despite its noble exceptions. He must be alive still, whether he agrees or not, to "votes for women" and the feminist movement. For the personnel manager, in order to be fit for his job must be an industrial counselor.

Everyone agrees that the personnel director must be a good judge of human nature. We have seen that human nature is not an indefinite, esoteric thing to be judged by some sort of mystical hocus-pocus. Neither is the power to judge it a mysterious faculty, peculiar to a few gifted geniuses. Human nature can be analyzed into definite elements. This analysis is not made by guessing, inspiration, or intuition, but like all other forms of scientific analysis, by hard, careful, systematic work.

The psychologist has found that individual human nature is a complex of instincts, habits, abilities, motives, and ambitions that obey definite laws. He is beginning to standardize the methods of analyzing that complex and to formulate those laws. The psychiatrist is throwing light on certain abnormal phases of human nature. Tests are at hand by which to determine abilities, nervous reactions, and mental and muscular fatigue.

Dealing with masses of men is also ceasing to be a mystery. It is not a matter of either the "glad hand" or the firm hand, of hurrahing or "handling." We are ceasing to be interested in handling. Attention is being directed to organizing, directing, educating, helping, and leading. The methods of doing this are based somewhat upon group psychology, of which more may be known in the future. More important are

standard systems of organization, and the technique of management compiled or extracted from a mass of carefully collected details touching all the various points of contact in industry. Such data are the basis of the profession of personnel management.

What the Director Should Know

The efficient craftsman in this occupation must have a working knowledge of economics; especially of industrial history, wage theories, standards of living, the technique of budget statistics, and of the methods of making and handling index numbers and other forms of industrial statistics. He must be *en rapport* with the great drama of the evolution of the machine, and the transformation it has worked in the relations of the human elements it touches. He must know something of the era of craftsmanship that the machine supplanted, and the society that rested upon it. He must be able to express graphically the great aggregates of facts relating to industry.⁷

Above all else, his work deals with *personnel*—industrial personnel, wage-earning personnel. He must know the labor movement, its history, literature, aspirations, tactics, forms of expression, and worldwide relations. Lack of this knowledge leaves him blind to some of the most important phenomena with which he must deal. He must know the story of the evolution of unions, their forms of organization, their methods of bargaining, their ideals, and their prejudices. Whether any particular industry is organized or not, it is still true that only organized labor can express the collective mind of labor. Unorganized units have no collective mind and no means of forming or expressing such a mind. Just as fast as hitherto

⁷Employment Management, Its Rise and Scope, Federal Board for Vocational Education, Bulletin No. 50, pp. 25-27.

unorganized labor finds organized expression, it develops certain common ideas and aspirations which reach across every race, religion, nationality, or industrial barrier. Whether to fight or to favor them, these common thoughts of labor must always be a part of the mental make-up of a competent personnel director.

Such a director should know enough of industrial engineering and scientific management to know whether a shop is properly organized and the work effectively routed; whether the planning department is co-operating with him; and how time, motion, and fatigue studies are taken and used. Though he cannot be an expert in all these lines, he can know the standard literature that deals with them, and whether the practice in the shop corresponds to that of the approved standards in the field. He need not know all the trades of the employees with whom he works. He cannot know them all in a large establishment. His trade is something different from, yet a part of, all of them. But the human side of each trade he must know. The tests of the knowledge needed concerning each occupation are: How does it affect the human being concerned? What time is needed to learn it? What fatigue phenomena does it produce? What are its opportunities for promotion? The list of questions are many and form the foundation of a thorough job analysis. But always he searches for the human side.

Contact with allied activities outside the plant, of which vocational education is one, must be close, for the fields overlap and complement one another.

That the personnel manager should know the technique and the trade habits of his own profession seems self-evident, but not all such managers know the best systems of organizing their own work. Not all of them route, plan, and standardize the activities of their own departments before seeking out defects of standardization and planning in other departments.

There is no excuse for this lack. The literature here is ample and the standards are firmly fixed.

It is true that in many lines of personnel work, the activity is so new and so rapidly growing that the best information is found only in the minds of the men and women who are doing the work. The time taken to write it makes it out of date. In these lines, the necessary material can be obtained only through close touch with fellow-workers in professional associations.

CHAPTER XVI

DEMOCRACY IN INDUSTRY

Growth of Political Democracy

Democracy conquered political power during the nineteenth century. It is now spreading into other fields. The steps and the methods by which it invaded and captured the machinery of government are much like those that now mark its advance into the field of industry. Knowledge of the tactics pursued in political development will guard against mistakes in developing industrial democracy.

Modern democracy is almost wholly a growth of the last three centuries, and largely a product of the last half century. It is little connected with earlier democracies, although its first friends plentifully interlarded their arguments with quotations drawn from the experience of the ancient Greeks.

The method of advance has been much the same in many states. The autocrat was forced, by the very multiplicity of his functions, to choose and trust many advisers. The growth of great nations, following the Renaissance, made this inevitable. Even a Charles V, Philip II, or Louis XIV could not perform alone all the duties of his office. Once these advisers were chosen, it became the fashion to blame them for all mistakes in governmental policy. The autocrat was always an adept at what modern politicians call "passing the buck." In no other way could he maintain the fiction that "the king can do no wrong." The separation of power and performance, of ruling and responsibility, brought important results. Subjects who saw an adviser deposed as a sop to popular protest soon demanded that his successor should be

named by popular vote. So absolute sovereigns became limited, and the cabinet system of government was born.

Representatives of the people, who were first assembled as a means of locating those able to pay taxes and who came unwillingly for that purpose, soon learned to bargain over the form and amount of taxes. Then they remained to make laws, their strength derived from the "power of the purse." So grew parliaments.

Diversity of Democratic Institutions

Democratic institutions are still unstandardized. They display all the diversity of growing social institutions. Such common and fundamental things as universal suffrage, secret ballot, equal representation, and the whole machinery of elections are comparatively new institutions. Universal manhood suffrage came to the United States largely as the outgrowth of a labor movement about a century ago. Woman's suffrage is of most recent date. Most voters can remember the introduction of the secret Australian ballot. The initiative, referendum, recall, and direct primary are still on trial or just taking form.

Nearly all democratic governments save the United States are of the cabinet system. This makes the legislative power supreme. America, almost alone, seeks equilibrium through a system of checks and balances. Other political democracies evolved through the stage of constitutional monarchy and grew by limiting the power of the hereditary head. Even where the hereditary principle was abandoned, the elected chief was given little more power than the monarch he supplanted. That this nation alone chooses its highest official by what is practically a popular vote, has largely determined the form of our political institutions.

There are striking variations within the United States. Compare the government of North Dakota, under the Non-

Partisan League, with that of New York or South Carolina. Contrast the multitudinous commissions and elaborate primary election law of Wisconsin with the legal code and institutions of Louisiana, which are based upon the customs of France.

Method of Democratic Advance in Politics

Democracy has advanced by a series of great waves, the first of which reached its crest with the Cromwellian revolt of 1640. This had been preceded by an emigration to America of a large section of the element that supported Cromwell. The long period of reaction which came with the restoration of the Stuarts extended to the American colonies, and at last aroused our democratic revolt of 1776. A spark from the American Revolution leaped the Atlantic and fired the explosives beneath the old regime in France. Then came a wave of reaction in both America and France.

The Chartist movement in England and the labor and radical movement in America, during the twenties and thirties, were the first signs of another democratic movement that reached its culmination in the Revolution of 1848. Before this had entirely spent its force, the Italian constitutional monarchy had arisen in 1861 and the French Republic had been established in 1870.

By this time the impulse toward democracy was so strong as to be almost continuous. There have been, however, two fairly well-marked phases of the onward sweep. The first was the rise of the working class in all western nations. The second sprang out of the Great War, with its dependence upon industrial conditions and continuous appeals for popular support.

Shifting Emphasis to Industrial Democracy

The field has been shifted to industry in these two phases. Here the same alternations and the same Protean expressions

may be expected. Cyrus H. McCormick, Jr., notes the resemblance in an address before the National Safety Council: ¹

There is a close parallel existing between the movement in favor of employee representation and the growth of democratic government. Europe in the 18th century considered Frederick the Great's government too nearly ideal. Later thinkers have called his government a benevolent despotism. Frederick was as autocratic as any Czar and his form of government a despotism; but because he tried to do right and interpret in the fairest sort of way the desires of his people, his despotism was benevolent. Now until recent years our industrial system was also a benevolent despotism. Large employers in this country and abroad instituted welfare work, started systems of insurance and compensation, made the conditions of their working people as safe and pleasant as possible; but everything that was done was paternally imposed from the top and did not come as the expressed desire of the great body of employees. The system was benevolent, to be sure, but it was nevertheless despotic to a great extent. Just as benevolent despotism in politics has given way to a great democracy wherein the governed have every right of self-expression, so in industry we are now finding the old system being set aside. Now the employee is not only given the right, but is urged to accept it, to sit on an equal basis with his employer and decide every question which affects his interests. Industry is becoming democratic.

The currents that unite to make this great tide are many and various. Labor early learned to use political democracy to improve industrial conditions, and the great wave of social legislation which began in the middle of the nineteenth century has become a dominant feature of the political life of all modern nations, mitigating, confining, and regulating the bitter industrial struggles. Such legislation derives its strength

¹ *Scientific American*, Feb. 7, 1920.

from many sources. In part it is due to the growing political power of labor, and is largely an expression of the fact that the group mind is always much better or worse than the minds of the individuals who compose it. In the group, each one seeks to accentuate those characters that bring group approval. The community condemns conditions in industry that many of its members endure without protest or maintain for profit. Social legislation restricted child labor, improved housing, regulated hours, provided better conditions in workplaces, increased safety, kept children in school, and in a multitude of other ways emphasized the human element in industry.

An accompaniment of social legislation in some places has been the development of joint bodies for the administration of labor laws. These boards, composed of an equal number of representatives of employers and employees, have arrived at common conclusions of a more progressive character than was generally anticipated—a further proof of the characteristics of group psychology just mentioned and also the herald of wider possibilities in joint action.

Science and Democratic Industrial Control

The “benevolent despotism” of the factory led to the same end. Welfare plans, managed from above, revolted the instinct of self-respect and aroused antagonism rather than good-will. Then employees were invited to co-operate. Safety campaigns succeeded only when directed by joint committees. This successful co-operation pointed out the road to democracy and persuaded the management of its desirability.

We have watched scientific management come close to shipwreck on the autocratic rock, and then sail swiftly on before the democratic breeze. But scientific management in the technique of production did something else, without which

industrial democracy is impossible. It helped introduce the idea of law into industrial relations. Chance, trial and error, violent struggle, lead straight to autocracy. Democracy must be based upon law. It must have a foundation of standardized, tested, and classified facts reduced to laws, upon which all can agree to build. It is not by accident that the growth of modern science precedes democracy everywhere. Disputes about facts cannot be compromised. Until they are settled scientifically there is no ground upon which to build common action.

The first workers in the field of scientific management tried to ignore the democratic implications of science. Their successors know better. Today every industrial engineer bases his work upon co-operation with all the human elements involved. He has become the firmest friend of industrial democracy. The moment the methods of science were extended directly to the problems of personnel relations, it was inevitable that democracy should follow. Every step in adjustment, promotion, introduction, training, and discipline, according to scientifically established standards of justice and economy, involved a corresponding extension of democracy. It also made that extension possible by laying its scientific foundation.

Growth of Joint Management

Organized labor had a great part in preparing the way for joint management in industry. The union movement taught the workers to think and act together. It led them to study industrial problems. In developing leadership for fighting, it trained leaders for industry. Through collective bargaining, the machinery of joint management and its institutions was evolved. That machinery has been tested under every imaginable condition, in literally millions of varying situations in every industrial nation. In such industries as

coal mining, printing, the building trades, and the manufacture of clothing, democratic institutions of great importance and varied complexity and efficiency have long functioned.

Had we traced the origin of political democracy in detail, we should have found similarly varied sources. We must, therefore, expect that industrial, even more than political, democracy will be a growth presenting multiform variations. Success is apt to follow this law of variation in growth. This opinion is confirmed by William R. Basset, who says in his book, "When the Workmen Help You Manage":

It is well, I find, to start with a single committee to adjust some particular trouble, and then, keeping that committee standing, gradually to enlarge its powers until the time comes for another committee. The whole Filene plan grew out of a dispute with a girl cashier over a shortage for which she claimed she was not responsible. She said that any fair-minded outsider would agree with her, and the store manager took her at her word and selected an umpire. The umpire sustained the girl; and from that incidental beginning grew the whole of the plan that is in force today.

It is not necessary and it is not advisable unless a company is face to face with an emergency such as a strike, to do more than cut corners at the very start; and then gradually a system which exactly fits that shop will develop in good time.

That plan is strongest which has the greatest elasticity; therefore the design should be laid out in bold free strokes and not in detail. Definitions of powers, exact procedures, and minute regulations should form no part of the eventual constitution or other instrument which may be adopted. It is really better to follow the British example and make the constitution consist of the body of laws and resolutions which are, from time to time passed. An exact definition of a power strikes some bumptious human chord that makes exceeding that limitation the only act worth while.

Phases of Joint Management

Experiment has now proceeded far enough to prove the practicability of some forms of joint management, and it would be as foolish to overlook these standardized institutions as it would be to enter recklessly upon the unstandardized field.

The roads along which democracy is entering the industrial domain, and the successive fields conquered, are now well charted. It already has control of many phases of factory surroundings. Only the foolish clingers to autocracy object to employees' sharing in the control of light, heat, sanitation, and safety regulations. There is really no way to shut them out. These things are coming more and more under the regulation of government, and the employees are citizens.

A suggestion box without joint control soon devolves into innocuous, or rather, pernicious desuetude. Confidence and constructive interest flourish only when the suggestions are passed upon and the rewards determined by a joint body. Without such control, stories soon begin to float about to the effect that valuable inventions have been stolen from employees. It is of little importance whether such stories are true or false; they will effectively dam up the flow of suggestions.

Training is impossible without plant co-operation. All forms of education are of prime interest to the person to be educated. He should certainly share in the control of any such education. If he does not, the cost of training will be increased and its value diminished.

Discipline offers a debatable ground. Old-style employers look for the world to resolve into original chaos if they cease to "run their own business" and to hire and fire as they please. Autocrats have always believed this; they have always been wrong in the past; they probably are now. Experience

indicates that every extension to this field brings greater, because more intelligent, order into industry.

Collective Bargaining

Having come this far into the "water," there is generally less hesitation about taking the plunge that places questions of wages, hours, methods of payment, and conditions of labor under joint management. It is foolish to dodge the issue by claiming an identity of interest at all points. Investigation has shown less antagonism on questions of high wages, short hours, and efficient production than both sides have anticipated.

But there is a point beyond which wages cannot be raised and hours shortened without damage to the interests of the employer, just as it is possible to push production to the point where the laborer is overworked. Of course it is true that in the long run the employee is not interested in destroying or crippling the industry, or the employer in injuring the worker. But we seldom wait for "the long run" when our immediate interests are touched.

The fairest view is to admit the antagonistic interests and determine whether they are to be settled by fighting or by bargaining. Joint management is continuous collective bargaining. It places all cards upon the table, permits no masked batteries, no camouflaged mines, and tries every possible method before resorting to a test of strength. Experience shows that when this is done there are few, if any, occasions for fighting.

Nevertheless, a warning should be sounded against the idea that joint management is the panacea for all industrial troubles. Unless some unforeseen age of miracles lies before us, there will be failures and disappointments in this, as in all other fields of social change. Wide knowledge and careful consideration of all steps will minimize these failures and

make them the stepping-stones to more nearly perfect institutions.

Joint Control of Finance and Sales

Present plans of joint management almost universally exclude financing and sales. Yet even in these fields, the efficiency and desirability of permanent autocracy is questioned. The sphere of the state in both fields is extending. Experiments like the Emergency Fleet Corporation² and the War Finance Board on the one hand, and the growth of the federal bank system in the control of credit on the other, with the development of such institutions as the farm loan banks, indicate that finance will not henceforth be purely a matter of private management. Restrictions in other directions, illustrated by "blue sky" laws and by the ever-growing publicity demanded for corporation accounts, emphasize this tendency. Modern efficiency insists that credit shall be based upon ability and not upon possession. We cannot permit financiers ignorant of the essentials of efficient production, to sabotage industry and restrict production by the autocratic distribution of credit. Some banks already investigate the efficient use of men and machines, and the extent of industrial good-will, as important elements in making up bankable assets. We shall see that in Great Britain the Building Trades Joint Council has already gone far toward joint management of finance to the satisfaction of all concerned.

Sales are also related to production. This may bring them under joint control. Manufacturing to suit fads means irregular employment. Joint management is apt to insist upon so organizing the sales department as to give greater stability and regularity.

Purchasing of material, and locating and extending the

² H. L. Gantt, *Organizing for Work*, 1919, pp. 8, 22.

plant, are subjects that so far have not been included under joint management.

Steps in the Change

Because of the importance of the change from autocratic to democratic control and the lack of standardization, each step requires care. Joint management is not a fad, a patent medicine, or a cure-all to be taken at a dose. It should be based upon thorough education of the personnel, and especially of the foremen. It is not only necessary that they be convinced of the desirability of the plan; they should know how it works and its relation to every plant problem. Lack of this knowledge leads to an indifference more deadly than hostility, or to focusing all attention upon one or two phases, such as wages, welfare, or safety.

The plan should fit the plant. Industries differ far more than political units. To try to fit them all to one scheme is to follow the Bolshevik idea that all problems are conjured away by the word "Soviet."

Any form of faking is fatal. As William M. Leiserson says: ³

Any employer who is not ready for collective bargaining, who is not looking toward turning over to his employees fifty per cent of his control over terms and conditions of employment, had better beware of shop committees. If he desires merely to improve the personal relations between his management and his men, if he wants only to be brought into closer contact with his employees for the purpose of insuring a square deal to them as he sees it, if he wants to see that justice is done to every employee as he sees justice, then all he needs is a good employment and service organization.

³W. M. Leiserson, *Organizing the Working Force, Industrial Management*, June, 1919, p. 503.

No scheme should posit finality. The gateway to amendment should be kept wide open. Each change should be thoroughly discussed, but there should be no walls barring progress. If any are built they will be violently assaulted. A corollary of this principle requires that the plan should be a joint product. It should come from a "constitutional convention" in which the employees and management are equally represented.

Principles of the Works Council

The "Works Council Manual," issued by the National Industrial Conference Board, summarizes these principles as follows:

First: The Works Council being a living organism and not a mere mechanism, cannot be set up as a piece of machinery might be installed. Its introduction necessitates a readjustment of certain human relations; its successful operation requires the presence of a favorable environment. Attention must be given to these considerations as well as to the features of the plan itself.

Thus it has proved to be primarily important that those plant executives who come into intimate contact with the employees, and who are to be directly concerned in the operation of the plan, shall possess the proper attitude and personality. They must be in accord with the idea of the Works Council; they must be sympathetic and tactful in dealing with the men. Also experience indicates that a Works Council is likely to meet with success only where there exists a feeling of confidence in the plan on the part of both management and men. Without these conditions Works Council may fail of its purpose, however perfectly its organization is planned.

Second: Since industrial establishments differ greatly in size, personnel of management, composition of working force, and other important particulars, an individual plan of organization needs to be developed for each establishment. To follow rigidly a set formula or a so-called "model" plan

is almost certainly to encounter difficulties. No one form of organization and no one mode of procedure is applicable to all establishments alike.

Third: A Works Council, being a human institution, cannot be so planned in advance as to meet all contingencies. Even after all possible care and foresight have been exercised, many details of organization necessarily remain to be developed in operation. The Works Council, therefore, should be left sufficiently flexible to permit of adaptation to environment.

Fourth: Since the Works Council is essentially a means of affording representation to the employees of an establishment, it is obviously desirable that they should participate in the development of the plan. A Works Council instituted without consultation with the employees is likely to be unrepresentative or at least to be regarded as such. The best results generally have been obtained where the plan of representation has been introduced with the cooperation and express approval of the employees.

CHAPTER XVII

FORMS OF JOINT MANAGEMENT

The Leitch Plan

Two distinct types may be distinguished in the midst of the diversified plans known as joint management. What is known as the governmental type is largely the creation of John Leitch. It is not properly a plan of joint management at all. Its author seems sometimes opposed to the idea of joint councils, although he constantly refers to his system as that of "industrial democracy." It has, nevertheless, frequently developed joint organs and sometimes grown into genuine joint management. Therefore its treatment belongs here.

The plan is modeled directly after that of the national government of the United States. There is a "house of representatives," generally elected by a mass meeting of all the employees below the rank of foreman. The "senate" is ordinarily elected by superintendents and foremen.

Application of Leitch Plan

In the Demuth Pipe Works, the qualifications for voters for the lower house are one year's employment by the firm, and ability to speak English and to "be on the square." The latter qualification is characteristic. Phrases are substituted for exact definitions and scientific accuracy. In addition to the senate, composed of superintendents, heads of departments, and factory foremen, the Demuth plan provides for a "cabinet," composed of members of the executive board, together with factory and sales managers. The president of the corporation presides over the sessions of the cabinet.

In the Goodyear Rubber Company, the plan is still further complicated by the provision in the constitution that, "On matters of joint interest to men and management, such as wage adjustments, working conditions and the adjustment of 'grievances,' joint conferences may be called where representatives of the men meet an equal number of representatives of the management." Here is manifestly the beginning of joint management. The vice-president of the firm further describes the composition of these joint conferences, as follows: ¹

The industrial assembly shall appoint 6 industrians, 3 from the senate and 3 from the house, and the factory management shall appoint 6 industrians, to meet as a "joint conference." Persons thus selected shall be duly accredited representatives of the Goodyear factory men and management for consideration of and cooperation upon subjects of mutual interest.

In this plant, also, all members of the house and senate are "elected by a direct vote of the plant citizens—industrians, as they are called. . . . The senate does not represent one class of workers and the house another, as they do under some of the plans that we studied. Both represent all the workers. The convention tried as far as possible to avoid ranging class against class anywhere in the system." ²

In the American Multigraph Company's plan there is not only a house, senate, and cabinet, but also a "supreme court." This is established "for the purpose of acting as a court of appeals or to interpret the articles that are provided for the new form of management. This court will consist of three members of the employees' Congress, three members of the

¹ P. W. Litchfield, vice-president Goodyear Tire and Rubber Company, *Employees Who Govern Themselves, System*, Mar. 1920, p. 476.

² *Ibid.*, p. 475.

Senate, and three members of the President's cabinet. The majority vote of this Supreme Court will carry with it its endorsement of any matter that comes before it."

The plan is varied in another way in the plant of the Carr Brothers Hosiery Company of Durham, North Carolina, by making the cabinet consist of "the four Carr brothers and the chief superintendent of the mills."

Weaknesses of Plan

In all respects there is lack of standardization in the application of the governmental plan as described above. Nor is this seemingly due alone to variations in the problems to be met. It seems to be due, in part at least, to loose thinking, and to a tendency to depend upon phrases and inspirational talks rather than exact knowledge. For example: The whole plan is repeatedly stated to rest upon four great fundamental principles—justice, co-operation, economy, service. There seems to be a sort of ritual of installation, in which a series of "sermonettes" upon these words plays an important part. This is a poor foundation upon which to build. The words are not inclusive of all the virtues. They are particularly difficult to apply. On all really vital questions each side believes itself to be applying them, with directly opposite conclusions.

There is one phase of the Leitch plan of which its author says little, but which seems to be a really important and distinctive characteristic. This is the bonus or profit-sharing attachment. Leitch describes the method by which he introduced this, as follows:

I told them that they were going to save money under the new plan—that they were going to get more work done; that it would not be a square deal for the company alone to take the money that they had saved but instead that we would split up the savings 50-50, that is, as the books of the

company showed savings in the cost of operation, the amount saved would be divided into two parts—one would go to the company and the other would be distributed every two weeks to the men as a dividend on wages.

This bonus system contains all the weaknesses of regular profit-sharing systems, plus some additional ones peculiar to itself. It assumes, without investigation, that the employees are responsible for at least fifty per cent of all the elements that contribute to profits. But we have already seen that only one of these many elements are in any important degree within the control of the employees. (See pages 212-213.) Moreover, it is doubtful if even the most perfect system of accounting is able to state every two weeks just what changes have taken place in the cost of production. We are moving toward such perfection of accounting, but it is dangerous to depend upon the systems that are found in most industries at the present time. Other and important pitfalls will beset such a scheme when profits are declining or absent.

Governmental versus Joint Council Method

Leitch has been a pioneer in many lines of industrial organization. He has written much that is fundamentally good upon industrial democracy. This should not blind the observer to the weaknesses of his methods. The criticism of W. L. Stoddard would seem to be fully justified. He says:³

The shop committee system of government does not resemble the kind of representative government which we have, for example, in the United States. The theory of the American government is that the people elect their servants whose duty it is to make and execute laws under a constitution, which in turn can be changed by the people. The

³ W. L. Stoddard, *Shop Committee*, 1919.

theory of the shop committee system form of government is that the employees elect their representatives who meet with an equal number of representatives of the management. Thus in the United States government there is only one source of power, the people. In the shop committee system government, there are two sources of power. This is what is commonly called "joint control," and the various branches of the government are called "joint committees."

Leitch insists that his plan is preferable to one involving joint action. He considers shop committees only a means of hearing and adjusting complaints, and says: ⁴

The settling of disputes is, of course, interesting, and undoubtedly is convenient, but it is not progress. It does not help anyone to be encouraged to air his troubles. If you organize a factory with the idea in mind that the people have been brought there primarily to have their grievances settled rather than to work, then you are promoting an undoubtedly interesting clinic in hypochondria. I think the results of shop committees or other bodies organized solely on this basis bear out my statement.

My procedure is quite the opposite. I want to give responsibility for constructive action and then the complaints and differences which arise are viewed by the people not merely as disputes, but as impediments to progress and are to be treated as such.

Certainly the joint committee that confines itself to hearing complaints is a negative force of no positive value. No properly conducted works council does this. It is not a question of whether such a constructive attitude should be maintained, but whether the "governmental" or the "joint council" method is the best instrument for constructive purposes.

The "Works Council Manual," gives its opinion on this point as follows:

⁴ John Leitch, *Background of Industrial Democracy*, Annals of the American Academy, Sept. 1919, p. 208.

As between the separate and joint forms of Works Councils, the latter appears to have the advantages. The joint Works Council, comprising representatives of the employees and the management, tends to develop in both a sense of their mutuality of interest. As a result its activities are more likely to be of a cooperative and constructive nature. Obviously, agreement between the parties should be facilitated by reason of the fact that the representatives of both, meeting in joint session, hear the full facts concerning matters under discussion before they are required to take a position. Each set of representatives, however, should be free to meet separately, since an opportunity for either group to talk over a matter among themselves, following joint discussion, may often facilitate a settlement. Moreover, such a provision preserves the separate entity of the two parties where their interest may be in conflict.

The Shop Committee

The committee type alone starts with the view of establishing joint management. As yet its organs and methods of work are far from standardized. Almost every imaginable form is being tried somewhere. Methods of election, meeting, representation, nomination, procedure, organization, as well as the powers of the various bodies, differ in detail from plant to plant.

It is not necessary for each new firm to repeat all this experimenting. Familiarity with results already attained greatly lessens cost and danger of failure. Yet these details are not unimportant. The question of whether representatives shall be elected at large or from departments depends upon the size and make-up of the industry. In a small, homogeneous force, election by a mass-meeting may be simplest and best. In a large and diversified industry, districting is imperative. The districting, however, is not something to be done carelessly. Bad districting in a plant may start as much trouble and work as much injustice as gerrymandering a state

for political advantage. Departments are jealous of their own autonomy. Each one wishes a representative familiar with the work and problems in that department, and this is a useful spirit to cultivate. It is an outgrowth of the group instinct which may be made most helpful in a genuine organization of industry.

Departmental Representation on Councils

But as departments often vary greatly in size, this interferes with numerical equality in electoral representation and is a cause of complaint. So departments must often be divided and combined. Intelligent districting requires a competent employment department, job analyses, standardization of wages, classification of positions, and complete organized knowledge of the functions, differences, and peculiarities of the different departments.

The plan of the Nunn-Bush Cooperative Association of Milwaukee provides for the election of one representative from each of the twelve departments of the shoe factory in which the plan operates. The whole organization grew out of an elaborate mutual benefit association, to which the company makes large contributions. A peculiarity of this organization is the office of chairman of the shop committee, who devotes his entire time as a representative and "business agent" of the employees. He receives a salary from the council and not from the firm. The employee members of the joint council are chosen by the shop committee of twelve.

The Bethlehem Steel Company, International Harvester Company, Colorado Fuel and Iron Company, and several other firms have plans providing for the election of representatives to a joint works council directly, by departments. All these plans, however, differ greatly in other details.

Another type of departmental plan of joint management is based upon divisional committees. These are generally

elected by departments and are assigned the duty of dealing directly with such minor questions as may arise within the division.

In some forms of this plan the total membership of all divisional committees forms the works council. This is the method followed by the Bridgeport Brass Company. Representatives equal in number to those elected by the employees are named by the employers for each divisional committee. The works council or plant committee chooses five members to serve with five management representatives as an executive committee.

Philadelphia Rapid Transit Company Plan

The plan of the Philadelphia Rapid Transit Company presents many peculiarities. Its employees are divided into many classes according to occupation, and also according to the stations, or depots, and the divisions of the road to which they are attached. Each of these classes forms a district, electing two representatives, and with two persons named by the employers, the four form a branch committee. "At least once in every three months there shall be an opportunity for a meeting of workers at each Branch, when reports shall be made by the local Branch Committeemen."⁵

These branch committees then combine to form department committees. There are five of these, classified as transportation, rolling stock and buildings, electrical, way, and general offices departments. "The members of each Department Committee for Employees shall annually elect two of their number, the members so elected to constitute the General Committee for Employees." This committee has power to review all matters dealt with by the department committees.

⁵ The Cooperative Plan, issued by the Philadelphia Rapid Transit Company, p. 17.

⁶ *Ibid.*, p. 22.

In case of disagreement and the impossibility of arbitration through arbitrators chosen by the two sides, the agreement provides that the provost of the University of Pennsylvania, the chairman of the Public Service Commission, and the president of the Chamber of Commerce shall serve as "additional arbitrators. Failing unanimous decision, the decision of any three of these five arbitrators shall be binding."

The plan is also coupled with an elaborate "Co-operative Welfare Association," which is "administered by a Co-operative Council consisting of the combined membership of the two General Committees for Collective Bargaining. The administration of the Co-operative Welfare Association shall be entirely separate and distinct from the function of collective bargaining."⁷

Fundamental Principle of All Plans

The various plans installed by the War Labor Board have a common outline. The works council is formed out of the chairmen of divisional committees. If there are less than ten of these committees, the entire membership unites to form the works council.

Relations with the unions led to a later development in the Bethlehem Steel Corporation and American Ship Building Company. The works council has been enlarged by the election of five representatives from the Metal Trades Department of the American Federation of Labor and the appointment of an equal number by the management.

Many minor variations of all these types can be described as now being tested out somewhere. Sometimes, as will be seen later, apparently insignificant changes produce most im-

⁷The Cooperative Plan, issued by the Philadelphia Rapid Transit Company, p. 29.

portant results. In all cases where joint management is based on works councils, the fundamental principle is the meeting in the works council of equal numbers of representatives of employees and management. Stoddard rightly says concerning this feature:

The joint meeting is the characteristic thing about the shop committee form of industrial government. It is more than characteristic, it is fundamental. The entire purpose of shop committee systems is to bring employer and employee face to face. To the minds of some keen employers and employees this movement means a return to the "good old days" when industry was small and the general manager personally knew Tom Jones in the foundry and dealt with him man to man, instead of through the medium of half a hundred subordinates. How to reestablish this kind of relationship in modern industry has been a problem which has puzzled many of the leaders in the world of labor as well as in the world of capital. At a critical time in the history of industry throughout the world the shop committee offers itself as a solution of this problem. By setting up a simple plan of internal shop government on the principles just outlined, something of the old small shop atmosphere can be regained. The sense of aloofness between employer and employee vanishes when the manager realizes that his responsible agents are meeting daily with the men in committee sessions; and when the men, for their part, realize that the management believes that the rank and file should have a say in the way the business is managed.

Powers of Works Councils

Powers of works councils vary as greatly as their forms. Some have almost no power. There are not lacking instances where employers characterize as "industrial democracy" the appointment of committees by the management to report grievances or recommend safety appliances.

Experience now indicates lines of possible standardization of powers. In the most successful plans, wages, piece-rates,

working conditions, promotion and discharge are subject to the decision of the joint bodies. The National Industrial Conference Board found 38 out of 145 joint councils dealing with matters of wages, hours, piece-rates, and similar basic matters. If these are excluded the council has no foundation upon which to build its work and to retain the interest of its members.

But these disputed questions should not be the end of the powers of joint management. They should be the beginning. Industry is conducted for production. Joint management must meet this test. If it does not produce the results expected, it is because, in many instances, the management still thinks of itself as a fighting organization seeking to capture the present product, not an organizing, directing body seeking to increase further production.

Effect of Joint Management on Management Staff

Even the latest models of joint management are not yet equipped with self-starters. A management that is too lazy or indifferent to do a lot of cranking had better not invest in a works council.

Joint management, so far from reducing the functions of the management staff, extends them into new fields and calls for largely increased abilities. Foremen, superintendents, and higher executives must now become real "labor leaders." They must constitute a general staff for the planning of production campaigns. These campaigns, moreover, are no longer to be tried out without examination or criticism. They must be so well constructed that they will stand the test of intelligent democratic discussion.

The management must continue to lead, but only by virtue of its ability to keep ahead. It must be prepared to present plans of production; to organize original research throughout the plant; to cultivate every form of desirable talent; to

present proposals for training in every field; to anticipate demands for promotion; and to develop such systems of promotion as will meet with democratic approval. Such work calls for a highly trained management. Few managers really know how to organize men, materials, and machines without autocratic driving. Many of them do not as yet even realize that with such driving there is really no organization. An organization is something that derives its vitality from within and not from without.

Only when works councils have plenty of work do they retain the interest of the worker, or produce anything of value. Where they are started as a fad, a weapon, or as an excuse, they are very apt to degenerate. In far too many cases they have been started as weapons against organized labor.

The investigation of the National Industrial Conference Board reports little definite effect produced in this direction. Unions come and grow, wax and wane, just about the same under works councils as without them. There are important and fundamental changes produced in the form and attitude of the unions, but this is to be discussed later.

Effect of Joint Management on Workers

The fuller the program of work of the joint council, the greater the educational value, and the greater its contribution to management. Those who have studied the movement most closely see it following the line that democracy has always

* "Those who may be considering such a plan must make up their minds to go into it completely or not at all. The plan must be broad if it is to be democratic, and if it is not broadly democratic it cannot succeed. The time may come when the employees will wish to share in the executive management of a business. This, however, will be a matter for generations of education and development; at the present time no one except the syndicalist is demanding participation in the management except as it affects the interests of the men."—Cyrus H. McCormick, Jr., *Cooperation and Industrial Progress*, *Scientific American*, Feb. 1920.

taken and extending to ever wider and wider fields.⁸ Ordway Tead foresees that:⁹

As soon as the workers realize that they do have a voice in determining the conditions of the new factory with which their livelihood is tied up, they will see new points of attack. They will want low unit costs. When that point is reached the game is up, from the point of view of autonomous shop control. Problems of research into process, introduction of new machinery with the maintenance of wages as high for machine feeders as for replaced craftsmen, training-in of new workers, the price of raw material, the effectiveness of the sales organization, and economy in securing credit—these are a far cry from a modest proposal of departmental representation on a joint shop board which is to discuss “grievances.” But these are the very matters that determine low unit costs. The day is gone when the workers or anyone else will submit to wage reductions in order to lower costs. This is a lazy and incompetent way to attempt economies. It will not be the way adopted in any plant where the shop committee is a living force.

.....

Employers, especially those who are fearful of union encroachments and attempts of “agitators to run my business,” must understand, then, that in their plans of employees’ representation they are not merely creating an organ of orderly adjustment and amicable cooperation. They are giving play to impulses of self-direction, leadership and assertiveness in their workers, which will not stop at some point which the employer has arbitrarily set in his own mind. They are creating machinery in the operation of which the workers will inevitably come to see how closely their destinies are linked up with the problems of tariffs, sources of raw material, unit costs of production and all the other elements. They are showing the workers that if an equality of bargaining power does not exist within one plant much can be done to remedy the inequality by

⁸ Ordway Tead, Criticism of the Whitley Report, *New Republic*, Feb. 8, 1919.

affiliation with the workers in other plants in the same industry.

Constitutionalism in industry is about to involve precisely what it has involved in political affairs—a hierarchy of representative bodies, each concerned with the problems which the size and character of its administrative unit requires. In this scheme of things the shop committee will necessarily have a significant place—a place at the base of the pyramid which culminates in joint national industrial councils and in international labor commissions. It cannot permanently be an instrument to thwart labor organization or to entrench the employer more fully in ultimate authority. The shop committee can and should, on the contrary, perform one inestimable, valuable and immediate function. It should contribute to the building up of a spirit of mutual understanding and personal confidence strong enough to make the transition to bargaining with labor unions a normal and a natural transition in which all values are retained and others added.

Adjustment of Minor Disagreements

Most plans provide for some sort of preliminary discussion and adjustment, through simple departmental machinery. Usually the representatives to the shop council or divisional committee take the matter up before any formal move to set the general machinery in motion is made. This disposes of the majority of all difficulties. As time passes, the number of grievances that go up to the joint body for formal consideration decreases. Each side learns what rules will be applied and what decision given in certain classes of difficulties, and applies these rules at once.

This first adjustment should be as informal as possible. Subsequent moves may well be surrounded with considerable formality. Statements should be reduced to writing and supported by witnesses. This very transformation from informal to formal action prevents petty disagreements from being carried into the general body.

Final Means of Adjustment

Most systems of joint management provide for some final court of adjustment. That provided by the Nunn-Bush Company and the Philadelphia Rapid Transit Company has already been described. The International Harvester plan climaxes in a general council of all the works, and, if this fails to decide, in arbitration by a mutually chosen body. The Colorado Fuel and Iron Company provides that final appeal shall be to the State Industrial Commission.

Many plans specifically reserve final decision to the board of directors. Of course, behind every plan, as behind every treaty between nations, there is always the possibility of a reversion to primitive conflict. All that can be done is to create all possible and desirable machinery for the expression in regulated form of divergent opinion, thus controlling the fighting instinct before resorting to the strike, lockout, or other forms of struggle. As already noted, the tendency is for government to provide voluntary, impartial tribunals for the handling of the questions to which joint management does not supply an answer.

Qualifications for Voters

Qualifications for voters and committee members vary greatly. Most plans require a certain length of employment, a minimum age of about eighteen, and ability to speak the English language. Some add American citizenship and a higher degree of literacy. Foremen, and all who have the power of hiring, discharge, or discipline, are excluded from voting. The management chooses its representatives from these. It is suggestive of thought that usually all the representatives who meet in a works council are really taken from among the employees. Ownership is seldom directly represented. It chooses its representatives from the executive staff.

All plans throw careful safeguards around the methods

of nomination and election. The least suspicion of influence here vitiates the entire plan.

Regularity in the meetings of the works council is important. Meetings should be carefully arranged for, and their proceedings should not be permitted to drift. It should be the definite task of someone, preferably connected with the personnel department, to ascertain the questions each department desires to discuss and prepare an order of business. It would be well to have a similar representative of the employees who would make sure that matters of interest to the employee representatives are not only upon the program but are prepared for. Meetings are usually held during working hours and on company time. Where labor is well organized and the instinct of self-respect highly developed, the unions often insist upon paying their representatives and holding the meetings off the plant and outside of working hours.

Efficiency and Production

Objections to joint management follow closely the type of those always directed against democracy. It is charged with lack of efficiency. In one point, that of quickness of decision, democracy is undoubtedly inferior to autocracy. Where secrecy and aggression in fighting are essentials of survival, democracy is at a disadvantage. The continuous victories, however, of democracy over the earlier and strongly entrenched autocracy, indicate that its slower decisions contain fewer errors. Democratic decisions, when made, have behind them the driving momentum of the mass, which autocracy lacks. As production rather than fighting comes to be the essential purpose of industry, the advantage of democracy increases.

Joint management will ultimately focus all the minds within the plant upon the problems common to the producing group. Then the results will be proportionate to the ability

and training of those minds. Democracy demands and implies education. This is as true industrially as politically, a fact apt to be overlooked or neglected by both political and industrial autocracy. Democracy in industry calls for industrial training of all citizens and expert training of all officials. This expert training must not be confined to trade skill. It must include training in group leadership, arousing of craftsmanship, organizing of labor for production, and knowledge of the proper relations between men, methods, material, and machines.

There should not be too great haste to secure increased production. Dale Wolf of the Miller Lock Company, Philadelphia, rightly characterizes increased production from shop committees as a by-product. He says:¹⁰

A factory starts an advertising campaign, little it knows what will be the results. When you start a shop committee you start an advertising campaign among your workers to up-grade the morale. Propaganda would be a better word. If you want your shop committee to stimulate production I believe that you must hook up directly to the work of the committee some definite financial incentives to the workers. This will create and instill the confidence of the workers in their committee.

Stimulated production is a by-product, if you please, of the shop committee. Don't start to get your shop committee to increase production. Let it do the work that has been laid out for it, then you will get increased production as a by-product. Have an honest-to-goodness shop committee, one that's on the square, and don't feel sore if you can't see the point where it's increasing production. Such work will come around. You don't generally start to manufacture a by-product, certainly not; the by-product comes after you start the main product through the factory.

¹⁰ Dale Wolf, Shop Committees and Stimulated Production, *Iron Age*, April 8, 1920, pp. 1030, 1031.

CHAPTER XVIII

UNION CONTRIBUTIONS TO JOINT MANAGEMENT

Original Object of Joint Management

Many employers undoubtedly adopted joint management with the hope of weakening the fighting strength of the unions. Simultaneously the unions have been moving in the same direction, with the object of decreasing the power of the employer. Paradoxical as it sounds, each, in reaching the goal aimed at, has found it to be wholly different from what it appeared at the start. The fighting strength of each contestant has been weakened, not by direct assault, but by the abandonment of previously valued weapons as no longer necessary.

Collective bargaining has always been a form of joint management. But it has always been looked upon as a truce in the midst of fighting, a treaty dividing the spoils of one war and laying the ground for the next. It developed the machinery for battle consciously and intentionally. It evolved machinery for co-operation unconsciously and almost as a by-product.

Such institutions as the two "houses" of the miners, meeting each year in Springfield, Illinois, to draft a joint agreement, helped to build the institutions of industrial democracy. Yet they were, and still are, organized primarily for fighting. But they began to fight without violence, with the treaty as well as the victory in sight. They also, like many other unions and employers' organizations, evolved machinery for joint enforcement of the agreement. But this machinery still

watched from opposite sides, preparing always for the next struggle. It was necessary for some industry to break out of this circle.

Conditions in Garment Trades

The garment trades were successful in doing this. Yet anyone who had observed this trade twenty years ago would have said that it would be the very last trade from which leadership in orderly development could be expected. Julius H. Cohen, attorney for the employers, in his standard history of the critical years of organized development, "Law and Order in Industry," says:¹

The industry is a style industry. It is also a seasonal industry. This makes it a part of the great unemployment problem of the country. . . . But because it is a seasonal industry, there is feverish work for six months and comparative idleness for the rest of the year and obviously twelve months' overhead charges for six months of operation.

The rents are enormously high. Factory must be near salesrooms. The successful manufacturer is at once salesman, designer, factory manager, financier and industrial expert. High priced lofts near the city's hotel and railroad centers offer him his only opportunity.

The shops were small. Any employee could, by saving a few dollars, rise to the condition of manufacturer within a short time. The labor force was recruited from an ever-rising flood of unassimilated immigrants, unable to bargain upon an equality with the employers. These immigrants were mostly Italians and Jews, intensely temperamental and impulsive. This characteristic was naturally accentuated by the miserable conditions under which they were forced to live.

¹J. H. Cohen, *Law and Order in Industry*, 1916, p. 86.

A large portion of the work was done in the homes, through subcontractors. Thus developed the infamous "sweating system" that became the superlative expression with which to describe the worst industrial conditions.

A larger percentage of these workers were followers of some revolutionary philosophy than are to be found in any other industry. To a righteous sense of revolt against unbearable conditions, they added an elaborate doctrine of revolutionary action. Such union organization as they possessed was of a spasmodic character. It was formed only for fighting. It was met with a similar unreasoned belligerency on the part of the employers.

During the late nineties I was personally brought into close contact with what was called the "great sweatshop strike" in Chicago. I visited many of the homes of the strikers. I saw children literally starve to death, families disrupted, men driven to suicide, and a bitterness of class hatred such as it would be hard to parallel. That strike, like several others, was lost, the union was smashed, and it seemed that the condition of antagonism was to be perpetual.

Cohen describes the situation in New York a few years later:²

Anarchy on the workers' side was matched by anarchy on the employers' side. The difference was one of kind and degree. In the case of the employers it was anarchy in the sense of lawlessness in their competition with each other and in their unwillingness to abide by the rules of their own making. . . . In 1907, 1908, and 1909 a union of cloak *manufacturers* was something to poke fun at. . . .

The trade union does not owe its origin to the decent employer, considerate of the well-being of the workers in his shop. The real propagandist for trade unionism is the

² J. H. Cohen, *Law and Order in Industry*, 1916, pp. 4-6.

employer who is not yet past the kindergarten stage of shop morality. . . . He literally makes the existence of a trade union possible, for without him there would be no union. His grasping, his tyranny, his indifference to the ordinary human rights of workmen and women make the basis of factory laws, industrial commissions, and clear the field for I. W. W. radicals.

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The merry game went on, each side lying in wait for the other. Employers freely signed contracts with the union, guaranteeing fine wages and good conditions. The ink was scarcely dry before they became mere scraps of paper. The new standards were secured at great sacrifice. During a strike the working people were enthusiastic union members, literally ready to die for their union. As soon as the paper was signed and peace was declared, they lost interest, failed to attend meetings, and the union lapsed into decay, to be revived only through another strike.

The Fight for the Closed Shop

Finally, in 1910, the union felt itself strong enough to demand the closed shop. For the fighting type of union this demand is fundamental. Without it there is no means of insuring good faith in the keeping of bargains, or maintaining the instrument without which no new bargain can be made.

The New York manufacturers rejected the demand, and the fight was on. The strike threatened to last through the entire working season. It was feared that this would destroy the industry. Negotiations were finally opened through Louis D. Brandeis, now a Justice of the United States Supreme Court. At the first meeting he suggested that all other matters in dispute be discussed before the subject of the closed shop was approached. This was done. As discussions proceeded, one after another of the items relating to wages, hours, and working conditions were adjusted.

The Garment-Workers' Protocol

In the process of this adjustment, a new form of joint agreement was evolved—the once famous “protocol.” There were several new features to this agreement that have had important results. It fixed no period of termination; instead it required six months' notice from either side to end it. This would be sufficient time to carry the agreement through a season and give opportunity for negotiation. But its most important features for the future of industrial democracy were the creation of three new institutions. These involved the formation of joint bodies for continuous management. Of the first two of these, Cohen says:³

For the purpose of securing some kind of law and order in the industry two institutions were created, the Board of Arbitration and the Board of Grievances. It is but fair to say that those who devised the scheme of both institutions had nothing more definite in mind than the acceptance frankly of the probability of controversy and providing some ready machinery to meet it as it arose. . . . No one then believed that in the succeeding four and one-half years the jurisdiction of the Board of Arbitration and the Board of Grievances would be exercised in something like 16,000 cases. That cases would arise and that they could not be rationally settled by either the method of the strike or the lockout was clear in the minds of the lawyers who framed the Protocol. The 18th paragraph of the Protocol provided:

“The parties hereby establish a Committee on Grievances, consisting of four members composed as follows: two to be named by the manufacturers and two by the unions. To said committee shall be submitted all minor grievances arising in connection with the business relations between the manufacturers and their employees.”

It will be observed that this created a bi-partisan board. Its number was very soon increased from four to six on each side, with alternates. Its jurisdiction was not outlined

³ J. H. Cohen, *Law and Order in Industry*, 1916, pp. 61, 62.

in detail. Whether it was to be in the nature of a legislative body, a conciliation body, or a judicial body only subsequent events could and did determine. It has since become all three. Obviously the simplest cases to dispose of were those in which an employer had failed to observe the definite standards established by the Protocol. He had worked overtime when work was prohibited, or he had worked illegally on a holiday or a Sunday, or he had paid less than the scale. Such cases presented simple questions of fact. It is one of the striking and unique experiences of the workings of this Board that throughout its entire experience there never was a deadlock upon a question of fact.

Absence of Deadlock

The surprise at the absence of a deadlock is one which is shared by everyone first introduced to joint management. Here were two organizations formed for fighting, depending upon their hostility as a means of mutual existence. They were asked to work together immediately after a bitter fight and to deal with the causes of that fight. Anyone who had been called upon to predict the probable workings of such a body would have had no hesitation in prophesying that such a board would be a continuous Donnybrook fair. But because it was asked always to deal with facts and not with theories, it never had a deadlock. Here runneth the first great lesson of industrial democracy: Have a means of determining, testing, and standardizing facts, and both sides will accept the decisions based on such a method. People do not quarrel about the multiplication table.

Influence of the Protocol on Sanitation

The third institution which was created by the protocol, and which proved a foundation-stone of a new industrial order, was the joint board of sanitary control. Like the other two it was a makeshift. No one expected much of it. Yet

after it had been in operation for a few years, the New York Commissioner of Health paid it this tribute:

The effectiveness of its work has been universally recognized and commended, and the program of the Joint Board is today the program of the Department of Health for the sanitary regulation of industry generally.

Some of the measures that grew out of this simple, joint body, with no more real powers than are possessed by the safety committee of any factory save for the moral support of the powerful union and the employers' association that stood behind it, are described by Cohen:⁴

This institution had raised the sanitary standards of the entire city, affecting the health and lives of not less than 80,000 workers, had established a system of regular fire drills, a system of careful medical examination for the workers who applied for it, had created a Sick-Death Benefit Fund, had worked out measures for fire protection, first aid to the injured, had studied a plan for insurance against tuberculosis and other infectious diseases, and had given instructions in hygiene to the workers themselves.

The fact that all this was accomplished without legislation or compulsion is especially noteworthy. Later, many of the standards thus established were embodied in legislation designed to reach other industries. For its success, the joint board depended upon its careful examination of facts, and the authority of the experts whom it included in its membership, to prescribe a remedy; and then upon the pressure of public opinion and joint good-will, to secure results.

The Preferential Union Shop

One more institution of great importance in the establishment of joint management, or at least in adjusting joint man-

⁴J. H. Cohen, *Law and Order in Industry*, 1916, p. 52.

agement to union labor, sprang out of this agreement. It will be remembered that the strike started over the question of the closed shop. By the time the other questions had been settled and machinery created for further joint action, the question of the closed shop had lost much of its importance. Consequently both sides were willing to accept a compromise. This compromise, called the "preferential union shop," was destined to be a vital point in many subsequent systems.

As the name indicates, a preferential union shop is one in which members of the union are given a preference but non-unionists are not excluded. Where sufficient union members apply to meet the need, they must be hired. In case the supply of unionists is inadequate, the employer is permitted to hire non-unionists. Persons employed previous to the agreement are not compelled to join the union. This relieves the employer of the always disagreeable duty of forcing old employees to join the union, under threat of discharge. It also insures the union of sufficient advantage to cause its membership to grow rapidly.

The Shop Clerks

In 1911 another fight developed another institution—the shop clerks. The union demanded that its walking delegates be permitted to enter and inspect a shop at any time. This is another fundamental demand of the fighting type of union. Without such inspection the union is unable to enforce its contracts, because employees, fearing discharge, will not report violations. Like the demand for the closed shop, the demand for inspection is particularly obnoxious to employers, as it violates their instincts of self-respect, leadership, and assertiveness. The demand of the union for the enforcement of its contracts is an effort to express similar instincts, and has therefore naturally been a constant source of irritation in labor relations.

Under the protocol, the question of the enforcement of contracts came up to the board of arbitration, which suggested that each side appoint a deputy or clerk in each shop, to be chosen from their regular employees. The employees were immediately to investigate any complaint, and if possible, secure an adjustment. They were not, however, to argue at any length over matters. If anyone wished he could at once insist upon an appeal to the board of grievances.

Previous experience with shop difficulties led to a general belief that these officials would almost invariably disagree and call for an appeal. An investigation by the United States Department of Labor brought out the fact that:⁵

Out of a total of 7,656 complaints filed between April 15, 1911, the date of the creation of the Board of Grievances, and October 31, 1913, 7,477, or 97.7 per cent, were adjusted by the clerks. The balance, 179, or 2.3 per cent, were handled by the Board of Grievances. Of the latter group 159 were settled by the Board. The remaining 20, the Board being unable to agree, were referred to the Board of Arbitration for final adjudication. Of these 20 cases, 12 involved the same disputed point—a controversy over the interpretation of the Protocol as to the payment for a holiday. As this involved a question of interpretation which could be passed upon finally only by the Board of Arbitration, it left but nine actually deadlocked cases. In other words, one-tenth of 1 per cent of all the cases that arose during the existence of the Protocol up to that time were deadlocked in the Board of Grievances. Of these nine cases, the investigation showed they were cases involving serious and fundamental differences.

The findings of this investigation establish that, upon the whole, the system devised in 1911 worked satisfactorily in 99 per cent of the cases; yet because of the 1 per cent it broke down partially in 1913 and completely in 1915. Why?

⁵J. H. Cohen, *Law and Order in Industry*, 1916, p. 72.

Evolution of Industrial Democracy through the Protocol

Before answering this "Why?" there are a few appropriate general observations that should be made upon the working of the protocol and the foundations it laid for joint management.

The protocol had begun to modify the fighting form of the organizations of both employees and employers. It was changing their character as fighting bodies—beginning to disarm in preparation for co-operating. The demand for the closed shop had become less imperative. The walking delegate had disappeared. John R. Commons holds that this was a natural and inevitable development of joint management. He says: *

This is not saying that national associations, either of employers or unions, have no place in the awakening new spirit of collective action. They have a place, but it is different. Their new place is more professional and educational and less executive and governmental. It is the place for comparing notes and statistics, sharing experiences, telling each other of their successes and showing how it is done in dealing with labor. It is less and less the place for depriving the employer of his freedom to deal with his own employees in his own shop. Employers' associations will and must expand, but they should become great educational conferences on the methods, the purpose and the spirit of shop organization, rather than law-making bodies for their members.

The spirit of democracy will not be confined to joint action. It will travel back to the organizations of labor and employers and democratize them and fit them for constructive co-operation.

To return to the evolution of industrial democracy through the protocol. It was never intended as a means of abolishing

* J. R. Commons, *Industrial Goodwill*, 1919, pp. 113-116.

the antagonistic interests of employer and employee. Neither did those who established and operated it seek to conjure those antagonistic interests away by closing their eyes to their existence. Cohen's statement on this point deserves careful study. He says: ⁷

This, then, was the policy of the Protocol: Assuming controversy and conflict between parties having divergent interests as inevitable, that such controversy should be put upon the plane of procedure of civilized and orderly men; that justice, however approximate, should be arrived at by the rational method, and that law and order should take the place of anarchy.

There is an important warning here to those enthusiasts who substitute inspiration for intelligence in dealing with labor relations, and who seek to force harmony and brotherhood before divergent or antagonistic interests are adjusted. Several antagonistic forces—inertia, expanding steam, friction, gravitation—are present in nearly every machine. The engineer who would seek to construct or operate a machine on the theory that all these forces work in harmony to the same end, would have a strange and foolish mechanism. But by recognizing and allowing for them all, and using those available, a multitude of fairly efficient machines have been evolved.

Cause of Collapse of Protocol

Even the final collapse of the protocol carried its lessons and helped to found a better organization. Unless the story of the growth of human institutions is suddenly to take a new course, there will be many such failures in the future, and if these failures are studied, they can be made to con-

⁷ J. H. Cohen, *Law and Order in Industry*, 1916, p. 42.

tribute as much to the growth of democratic institutions as some of the successes.

The particular cause of the collapse was a demand of the union that no workers should be discharged during the dull season. This sounds like an unreasonable demand, and it was unreasonable. Yet it grew naturally out of the form of the agreement, the necessities of the union, and the nature of the trade. The agreement provided that any employee who had worked for more than two weeks could not be discharged without the right of appeal to the board of grievances. Both sides intended this rule only to prevent some immediate injustice in discharge; there was no thought of stabilizing seasonal employment. But the moment order was introduced into the industry the union was confronted by the fact that if, during seasonal fluctuations, a portion of its members were selected for steady work, the others would not only lose interest in the union, but would view the process of selection with suspicion. This would inevitably lead to dissension and conflict within the union.

The attorney for the union, in presenting his case to the board of arbitration, set forth the position of the union as follows: ⁸

In regard to retaining men, we absolutely militate against the principle of recognizing merit as a ground for retention, as a ground for preference over the man that is less skilled, and we say this, that this is the principle upon which our organization rests, and with which it will have to stand or fall, and that is the principle that the organization is not here to allow the so-called free play of nature or competitive forces, which will pick out 20,000 men out of 50,000 men, or women for that matter, and secure them constant, permanent and lucrative employment and leave the 30,000 other men and women to smaller remuneration during

⁸ J. H. Cohen, *Law and Order in Industry*, 1916, p. 144.

seasons, and to no earnings of any kind, and starvation, after season.

The permanency and institutional character of the protocol had created a status for employees which the union insisted must be maintained. The attorney for the union said, "The union is here to stand for *all* its members; by this we stand or fall." He could not take any other position and retain the confidence of the union membership. By adjusting one set of difficulties, the protocol had but lifted the lid that concealed deeper and more fundamental issues. This is a way that growing democracy has—it grows only by meeting each emergency as it arises.

The employers rightly declared that to grant such a demand for a status of employees destroyed all discipline and rendered efficiency impossible. Here was a clear conflict between the interests of the human element and the interests of efficiency.

The Strike of 1915

The board of grievances, and board of arbitration, not having been formed to meet any such situation, naturally refused to consider discharge for lack of work a grievance within their jurisdiction. The industry was at once plunged into the bitter strike of 1915. The union had a full treasury, a confident, belligerent, and efficient membership united upon this one, to it, vital demand. There seemed no way out. Mayor Mitchel was asked to appoint a committee to try to adjust the difficulty. This committee consisted of Felix Adler, president of the Ethical Society; Walter C. Noyes, ex-judge of the United States Court of Appeals; George W. Kirchwey, ex-dean of Columbia Law School; Henry Bruere, city chamberlain; Louis D. Brandeis, ex-head of the Board of Arbitration; and Charles L. Bernheimer, chairman of the Committee

on Arbitration of the Chamber of Commerce. The committee listened to the statements and arguments of both sides for a considerable period. Then it issued the following decision:⁹

Fundamental Principles of Joint Management

. . . . The principle of industrial efficiency and that of respect for the essential human rights of the workers should always be applied jointly, priority being assigned to neither. Industrial efficiency may not be sacrificed to the interests of the workers, for how can it be to their interest to destroy the business on which they depend for a living, nor efficiency be declared paramount to the human rights of the workers; for how in the long run can the industrial efficiency of a country be maintained if the human values of its workers are diminished or destroyed? The delicate adjustment required to reconcile the two principles must be made. Peace and progress depend upon complete loyalty to the effort to reconcile them.

In accordance with this fundamental principle the following decision was made concerning the right of the employer to hire and discharge.¹⁰

I. Under the present competitive system, the principle of industrial efficiency requires that the employer shall be free and unhampered in the performance of the administrative functions which belong to him, and this must be taken to include:

a. That he is entirely free to select his employees at his discretion.

b. That he is free to discharge the incompetent, the insubordinate, the inefficient, those unsuited to the shop and those unfaithful to their obligations.

c. That he is free in good faith to reorganize his shop whenever in his judgment the conditions of the business should make it necessary for him to do so.

⁹ J. H. Cohen, *Law and Order in Industry*, 1916, p. 172.

¹⁰ *Ibid.*, pp. 172, 173.

d. That he is free to assign work requiring a superior or special kind of skill to those employees who possess the requisite skill.

e. That while it is the dictate of common sense as well as common humanity, in the slack season to distribute work as far as possible equally among wage-earners of the same level and character of skill, this practice cannot be held to imply the right to a permanent tenure of employment, either in a given shop or even in the industry as a whole. A clear distinction must be drawn between an ideal aim and a present right.

Here is apparently a complete rejection of the demands of the union. As the union was still in excellent fighting condition, the observer would naturally expect the decision to be rejected and the strike to proceed with increased bitterness. On the contrary, the decision was at once accepted by the union, as applied to the cloak situation in New York, and a few months later was made the basis of similar agreements in Boston and Chicago. The comment of Cohen on this outcome may well serve as a concluding comment on the principles which the experience of the protocol showed to be fundamental in establishing institutions for joint management: ¹¹

The final result, so valuable to all parties concerned, could not have been accomplished by mutual agreement. It required *judgment*, impartial judgment, by a tribunal in which both sides had confidence and before which each side might have a full and complete hearing. Before such a tribunal there could be battle, not the battle of war, but of ideas. The prime lesson of the 1915 experience is that *great conflict over vital principles will arise even under joint agreements. Such conflicts cannot be settled by force. Neither the strike nor the lockout will help. They cannot be settled by courts of law; courts of law are not constituted*

¹¹J. H. Cohen, *Law and Order in Industry*, 1916, p. 176. Italics in original.

to take care of them. They cannot be settled—indeed should not be settled—by compromise. They must be beaten out in a forum of reason. If such a forum does not exist it must be created. And even though it exist, errors of judgment, like errors of courts, must be expected. Such errors will require correction, modification, or even reversal. Through error progress will be made.

Educational Value of Protocol

The protocol had made its great contributions to the evolution of the institutions of joint management. It had evolved instruments for the adjustment of grievances, the arbitration of differences, and the determination of principles. It had begun the process of mutual disarmament, and the transformation of the organizations of labor and employers from armed forces into constructive social institutions. It had educated thousands of employees and employers to certain very important fundamental principles of industrial democracy.

Having made these important contributions, as so often happens in the development of social institutions, this particular group momentarily surrendered the lead. Internal dissensions, a belief of each side that more could be gained by an open fight, aggravated by some peculiar personal developments, led to the abandonment of the whole plan and a series of struggles between the union and the employers. Anyone who has watched the evolution of national and international relations will find it easy to parallel this situation many times. But this does not prove that orderly government is not desirable or even that better international relations cannot be established.

The Hart, Schaffner and Marx Trade Board Plan

The line of evolution passed next to another branch of the garment trade. The great strike of 1910 extended to

Chicago. In seeking a settlement, the firm of Hart, Schaffner and Marx, in co-operation with their employees, established a method of maintaining relations that in 1916 grew into an agreement that has since become the most promising expression of industrial democracy to be found in the United States.

This agreement of 1916 provided for a board of arbitration and a trade board, with deputies and other joint officials. The board of arbitration was the court of final jurisdiction over all matters contained in the joint agreement, which provided that: ¹²

It shall be the duty of the Board to investigate and to mediate or adjudicate all matters that are brought before it and to do all in its power to insure the successful working of the agreement. In reaching its decisions the Board is expected to have regard to the general principles of the agreement; the spirit and intent, expressed or implied, of the parties thereto; and, especially, the necessity of making the instrument workable, and adaptable to varying needs and conditions, while conserving as fully as possible the essential interests of the parties involved.

.....

If there shall be a general change in wages in the clothing industry, which shall be sufficiently permanent to warrant the belief that the change is not temporary, then the Board shall have power to determine whether such a change is of so extraordinary a nature as to justify a consideration of the question of making a change in the present agreement, and, if so, then the Board shall have power to make such changes in wages or hours as in its judgment shall be proper.

In place of the board of grievances of the protocol, the

¹² The Hart, Schaffner and Marx Labor Agreement, 1920, p. 12. This is a compilation of original documents and special articles on the history and operation of the plan, and is the most important source of information.

Hart, Schaffner and Marx plan established a trade board, the qualifications and powers of which are defined as follows:¹³

The Trade Board is the primary board for adjusting grievances, and shall have original jurisdiction over all matters arising under this agreement and the decisions relating thereto, and shall consider and dispose of all matters when regularly brought before it, subject to such rules of practice and procedure as are now or may be hereafter established.

The Board shall consist of eleven members, all of whom excepting the chairman, shall be employees of Hart, Schaffner & Marx. Five members shall be chosen by the company, and five by the union, and it is understood that these shall be selected in such manner as to be representative of the various departments—cutting and trimming, coat, vest and trousers.

The Board shall be presided over by a chairman who shall represent the mutual interest of both parties hereto, and especially the interest of the successful working of this agreement.

This "impartial chairman" is an integral and important part of the plan, and is one of the fundamental contributions of this agreement to the development of joint management. So complete is the confidence and power vested in him, that the other members of the board no longer attend meetings. Such chairmen, both of the trade board and board of arbitration, are agreed upon at the time of the formation of the original agreement. In the case of the three members of the board of arbitration, the names of all are decided upon at the beginning. Either party may remove the particular member whom it appoints to the board of arbitration. But the chairman is not removable except by joint negotiations.

The industry has been extremely successful in securing

¹³The Hart, Schaffner and Marx Labor Agreement, 1920, p. 12.

men of marked ability and integrity, in whom both sides have had confidence. Furthermore, since the power to enforce decisions must rest, in the last analysis, upon continued joint good-will, there is an automatic safeguard against even unconscious unfairness.

In 1916 the agreement was subjected to its most important crisis. The union insisted that "a general change in wages in the clothing industry . . . sufficiently permanent to warrant the belief that the change is not temporary" had taken place, and that therefore the board of arbitration must be called upon to formulate a new scale. This was disputed by the employers; but the matter was finally left to the board of arbitration, which decided that such a change, within the meaning of the above clause, existed. Consequently a new scale was drawn up and accepted by both sides.

National Extension of Plan

Three years later, in July, 1919, the plan was extended to the entire clothing trade. The National Industrial Federation of Clothing Manufacturers was formed, with a board of governors consisting of four manufacturers with alternates. These represented the four great centers of the clothing industry—Chicago, New York, Rochester, and Baltimore. The articles of federation also provided that "Markets not at present represented in the Federation may be admitted on application to the Board of Governors."

Further important provisions read as follows:

The Board of Governors, by a unanimous vote of the full Board, shall have authority on behalf of the participating manufacturers to establish lawful rules and regulations with reference to the industrial relations between the employer and employees, and to negotiate and formulate lawful agreements with the Amalgamated Clothing Workers of America, or any other association of employees. The Board

of Governors shall also have authority to establish an organization with proper administrative functions for the purpose of stabilizing standards of efficiency and conditions of employment in the industry.

The Board of Governors shall immediately establish a National Board of Labor Managers as one of its administrative agencies to which it may delegate authority to execute policies and policies adopted. Each district shall nominate a labor manager who, when approved by the Board of Governors, shall become one of the four members of the National Board of Labor Managers. The Board of Labor Managers shall have a chairman responsible for the functioning of the board.

George L. Bell, New York chairman of Industrial Relations Committee, explains some further and interesting functions of this national organization:¹⁴

The formal creation of a national joint council with full powers and representing equally the manufacturers and the organized workers has been completed. It is the plan of those interested to make the council a vital and living thing by having a full time secretariat and research bureau constantly at work on the problems of industrial relations, unemployment, production, elimination of seasonal aspects of the industry and other similar questions. With such a research bureau constantly functioning, the council should develop into a real and creative institution. Without such a bureau there is danger of degeneration into an informal organization meeting at infrequent intervals and without facts, authority and information gathered to serve as a basis for decision.

Another development made possible by the creation of a national organization is the interchange of decisions between the various trade boards and boards of arbitration. These decisions are now indexed according to the standard system

¹⁴G. L. Bell, To Meet the Changing Problems, *Survey*, Sept. 13, 1919.

used with legal decisions and point to the establishment of a "common law in industry." Of this development, Dean John H. Wigmore, of the Northwestern School of Law, says: ¹⁵

The Labor Manager

The significant thing is that *general principles are beginning to be formulated*. And the moment you have general principles, used for deciding particular cases, you have justice in the form of law, as distinguished from the arbitrary justice of a Turkish Caliph, or from private struggle decided by private force.

Before these various tribunals each side is now represented by its specially trained representative. He acts as an attorney for his side. He must be an expert in industrial relations. This need has developed on the side of the employers another essential institution, the skilled labor manager. These labor managers meet regularly for joint discussion and decisions as to policy. Hart, Schaffner and Marx say of their labor department and the manager who heads it: ¹⁶

This new department, headed by Professor Earl Dean Howard of Northwestern University, gradually assumed certain functions in which the workers had a direct interest and administered them with the main purpose always in view. The chief duties of the labor department now are: the maintenance of a system for the prompt discovery and investigation of any abuses or complaints existing anywhere among the employees; the recommendation of measures designed to eliminate the source of complaint; protecting the company's interests in the Board of Arbitration and the Trade Board; negotiating with the business agents of the unions and satisfying their demands as far as possible; administering all discipline for all the factories (all execu-

¹⁵ *Illinois Law Review*, Mar. 1916.

¹⁶ The Hart, Schaffner and Marx Labor Agreement, 1920, p. 65.

tives have been relieved of this function); general oversight of all hiring; the maintenance of hospital and rest rooms; the administration of a charity fund for unfortunate employees, of a loan fund, and of the Workmen's Compensation Act; responsibility for the observance of the state and municipal laws regarding child labor, health and safety, also for the strict observance of all agreements with the unions or decisions of the two Boards; education of the foremen and people in courtesy, patience, mutual helpfulness and other peace-producing qualities; suggesting devices for the amelioration of hardships incidental to the industry and for the higher efficiency of operating.

The high-grade employment practice which is insured through the work of employment managers of this kind, nearly all of whom are university-trained men and several of whom are of national prominence as authorities upon labor problems, is of the utmost importance to the success of any such plan. Such men bring expert opinion to bear upon every question, and their employment guarantees that facts will be scientifically collected and presented and that a constantly increasing body of such facts will be built as a basis of all actions.

Success of Trade Board Plan

The greatest achievement of the trade board plan is perhaps to be found, not in the fact that strikes have been avoided, although this naturally attracts the most attention and is a great gain, but in the fact that the work has been thoroughly standardized for the settlement of future problems. Professor Howard says on this point:¹⁷

Lack of standards is probably the chief cause of disorder and conflicts, especially in the needle industries. This includes standards of workmanship, piece-work prices, conduct

¹⁷ The Hart, Schaffner and Marx Labor Agreement, 1920, p. 75.

in the shop, and all points which involve the interest of the employee.

The primary tribunals or Trade Board should settle finally all disputes as to facts; appeals should be taken only when disputed standards are involved. Each case before the Board of Arbitration is an opportunity to establish one or more standards. Thus, unless the industry is one of great changes, the board will find the need for its services grow gradually less as both parties learn to be governed by standards. The immense value to an industry of established standards should reconcile the parties to the time consumed in deciding some comparatively unimportant case which happens to afford an opportunity for creating a standard. The board in such cases should get expert and technical testimony from all sources through witnesses and committees of investigation, so that the work is done once for all.

Effect of Joint Management on Production

This movement also meets the vital test of any form of industrial organization in that it has improved production. The time is still too short for any accurate general statement. Sidney Hillman, president of the Amalgamated Garment Workers' Union, to whose able leadership much of the success attained is due, stated in an address before the National Industrial Relations Convention at Chicago, in June, 1920, that this industry was the only one that had shown an actual increase in production per worker during the year previous. George L. Bell, previously quoted, holds that only through some such phase of industrial democracy is it possible to secure that co-operation of the workers which is essential to increased production. Jacob M. Moses, impartial chairman of the Baltimore trade, is more specific, when he says: ¹⁸

Before the agreements were made with the union the employers found it next to impossible to improve their

¹⁸ *Annals of the American Academy*, Sept. 1919, p. 174.

methods of production and the installation of new systems was almost out of the question. The workers resisted changes which involved learning a new operation or a loss in wages. After all, when a man has been making pockets in a certain way for ten years and has acquired great skill and speed and a fair earning capacity, he can hardly be expected to submit tamely to a radical change in method which practically nullifies his accomplishment and relegates him to the rank of a learner or the unskilled worker. Therefore, every important change usually involved a stoppage of work and the employer considered himself fortunate if he could secure a slight concession. This situation is dealt with in the agreement (clause H) which provides that changes in methods of production, as well as changes of workers from one operation or department to another, may be made by the employer, provided the individual worker does not suffer because of such change. Of course the shop chairman must be notified before such change is made, so that he may explain the matter to the worker or group and assure them that they will not be permitted to suffer through the change. This means, especially, that the workers will not receive less wages under the changed conditions. This clause of the agreement has been construed by the Trade Board to permit the introduction of new machinery, new systems of handling and routing the work, new methods of production, the keeping of records by the workers and, within the last few months, the taking of time-studies for the purpose of establishing piece rates and standards of production. Obviously, this is a tremendous gain, and although, at times, such innovations have met with vigorous protest from the rank and file, yet the leaders of the union, all things considered, have displayed a spirit of cooperation and a degree of intelligence and comprehension of modern business methods truly remarkable.

This changed attitude of the organized worker toward time and motion study is perhaps the most remarkable testimony, both to the increased interest in production, and to the general altered character of previous fighting organizations.

The mere proposal to use these methods would have brought a strike in the old days. John R. Commons describes present methods as follows:¹⁹

The two representatives on the Trade Board constitute themselves a committee of time-and-motion study experts in order to fix the prices of work. These work together with their stop-watch, if needed, to ascertain and agree upon the time required to make the new piece, and to calculate the corresponding piece rate.

. . . . And the workers are just as much concerned as the management to have the speeds accurate. For their wages and speed depend upon it. Where opinions differ there can be no accuracy, in the mechanical sense, but there may be conciliation and a working agreement.

Interest of Union in Efficiency

The most remarkable expression of this attitude is to be found in an incident in Cleveland. Here the International Ladies' Garment Workers, the same organization that, in New York, had built up and then withdrawn from the protocol, has been feeling its way back toward joint management of the newer form. A recent observer describes the developments that have taken place there:²⁰

Frankly casting aside their old hatred of "efficiency," the six Cleveland locals of the International Ladies' Garment Workers' Union have assumed half, or \$10,000, of the expenses of a study of the industry in Cleveland by a New York firm of industrial engineers. The engineers are instructed to rearrange the wage scale on the basis of a protected minimum yearly income, to introduce economical methods of operation in place of traditional wastes and to devise a plan for joint managerial and union control of production.

¹⁹ J. R. Commons, *Industrial Goodwill*, 1919, p. 124.

²⁰ J. W. Love, *Teamwork in the Cleveland Garment Industry*, *Survey*, Apr. 3, 1920, pp. 24, 25.

The other half of the cost of the renovation will be paid by the Cleveland Garment Manufacturers' Association. This includes 35 concerns, the largest among the 120 in the city. The trade employs about 6000 men and women, about 75 per cent of whom are on piece work. . . .

The findings of the engineers will be submitted to the manufacturers and the union representatives in occasional reports during the study and as fast as they are approved by both interests, the new methods will be set in motion.

How this new move is viewed by the union is shown by a quotation from Perlstein, vice-president of the national union:

This is the first time in history a union has joined hands with employers to retain scientific engineers. We have come to a point where the old woolly words and phrases won't do. We can't get anywhere talking about fair day's pay and fair day's work. Nobody knew what a fair day's work was, so we started to find out.

Joint control of production standards is what will make it possible for the union to accept a graduated scale based on production. The marginal worker will earn a living wage and the well trained worker will be paid proportionately for his skill. Joint control within the plant and joint supervision of the time tests and the application of the engineer's tests will prevent speeding up.

This statement indicates the dropping of another weapon—opposition to bonuses and graduated wages. It is now claimed that 97 per cent of the clothing of America is manufactured under some form of joint management. This has been accomplished in the trade that but a short time ago was the synonym for industrial anarchy.

Joint Management in Other Trades

Other trades are moving along the same line. An international joint conference council now governs between 70 and 75 per cent of the book, job, and periodical printing. This

council is composed of delegates from three employers' organizations and four international unions. As an elaborate system of collective bargaining exists in this trade, the council does not concern itself primarily with disputes. The agreement provides that: "All conciliation and arbitration processes covered in existing agreements must be exhausted before appeals are taken to the International Council." Some of the subjects with which it is to concern itself are enumerated:²¹

Investigation of the question of apprenticeship conditions; adoption of suitable methods of selection for apprenticeship, and the technical training for apprentices, learners and journeymen through the industry; the improvement of process, designs, and standards of workmanship; to seek adequate representation on the control and management of all technical institutes; to consider and report upon all improvements of processes, machinery and organization, and appropriate questions relating to management and the examination of industrial experiments, with special reference to co-operation in carrying new ideas into effect, and full consideration of the employees' point of view in relation thereto. The better utilization of the practical knowledge and experience of employees, with provision for facilities for the full consideration and utilization of acceptable inventions and improvements designed by employers or employees, and for the adequate safeguarding of the rights of the designer of such improvements.

Determination of practicability of establishing wage adjustment boards throughout the industry.

Consideration of any matters of general interest to the Trade, whether industrial, educative, economic, legislative or hygienic may be taken up.

Similar plans are under consideration in several other industries, and many signs indicate that the movement for joint management has now reached a depth and breadth that speaks for growth and eventual permanency.

²¹ International Joint Conference Council, Preamble to Agreement.

CHAPTER XIX

BRITISH EXPERIMENTS IN JOINT MANAGEMENT

Organization of British Labor

A remarkable development in joint management, and one carrying many lessons, is to be found in Great Britain. British labor has long led the world in organization. Here unions first gained a foothold, obtained legal recognition, and rose to an established place in all industrial relations. Collective bargaining has long been the regular method of adjusting such relations. The movement for the open shop disappeared many years ago. The bargaining, however, has been of the orthodox, hostile character. One result of this was a complex mass of restrictions upon production. The day's work was stereotyped to suit the slowest workers. Countless safeguards against competition barred apprentices and the partially skilled from many trades. Many trade practices were deliberately designed to restrict production. All these things had been built up by the unions as necessary defenses against driving, rate-cutting, underbidding, sweating, and other offensive and often production-reducing devices of the employers.

Effect of War on Unions

Then came the war. The transformation of industry and the great productive exertions demanded by national existence were impossible if the restrictions inherent in industrial conflict remained, so the unions were called upon to surrender their weapons. They agreed to the introduction and training of new and unskilled workers for the "dilution" of the previously guarded trade monopoly. All limits on production

were removed. Most significant of all, they surrendered their most effective weapon, the strike.

The unions charged that this surrender was not met in the same spirit by the employers, but that these refused to raise wages in accord with the increased cost of living, or to limit their profits to pre-war standards. The unions were, however, helpless. The inevitable result followed. Aggression developed new weapons in the ranks of the workers. This development brought important structural changes.

Shop Stewards and Committees

There had long been in the trade union organization officials known as shop stewards, selected by the workers in each shop. It was their business to present complaints to the management, collect union dues, and see that the terms of the collective agreement were observed. If their complaints were unheeded they appealed to the national unions, who could use the strike to secure redress. They had little other power.

Now that the redress for rejected complaints was removed, inasmuch as the national officers of the unions had bound their own hands by the agreement not to strike, it was natural that the shop stewards should become a new weapon. They had signed no agreement against striking. Therefore they themselves called out the employees in thousands of shops where strikes were subject to no regulation. They crossed the boundaries of previous trades. As they lacked any responsible head, they could not be suspended by even such temporary truces and agreements as had hitherto broken class conflict. The shop stewards, as the one powerful expression of the fighting instinct, grew rapidly in power. They came to embody and express the revolt of the mass of workers, not only against the employers, but also against the old trade union officials. A new and powerful organization suddenly sprung up around the shop stewards—that of the shop committees.

When I visited England in the summer of 1918, the shop committees with the stewards were forming district and even national organizations, and were rapidly becoming the most notable feature in British industry. This phenomenon on the side of the unions inevitably developed machinery on the side of the employers to deal with the shop committees. A form of joint management, resembling in many ways the plans introduced by American employers, was put in operation in many industries. The powers of these shop committees, and the joint committees based upon them, varied greatly. In some instances their power extended even to the election of foremen.¹ It became evident that these developments portended fundamental alterations in all industrial relations.

The government appointed a subcommittee of the Reconstruction Committee: ²

1. To make and consider suggestions for securing permanent improvement in the relations between employers and workmen.

2. To recommend means for securing that industrial conditions affecting the relations between employers and workmen shall be systematically reviewed by those concerned, with a view to improving conditions in the future.

The Whitley Industrial Council Plan

This committee, known from the name of its chairman, J. H. Whitley, as the "Whitley committee," issued a series of epoch-making reports.³ The central constructive feature of these reports was the recommendation for a fundamental

¹ Inquiry of Department of Labor (British) into Works Committees, March, 1918.

² Report Cd. 8606, Mar. 8, 1917.

³ The more important of these reports have been reprinted in various issues of the Monthly Review of the United States Department of Labor; Bloomfield, Industrial Management; and W. L. Stoddard, Shop Committees. References are made to the original British Reports, of which the notes give numbers and dates.

transformation of all British industry by the establishment of a series of joint councils.

This, the now famous "Whitley plan," was linked with the shop committees in an early report which made the following observation and recommendation: ⁴

There has been some experience, both before the war and during the war, of the benefits of Works Committees, and we think it should be recommended most strongly to employers and employed that, in connection with the scheme for the establishment of National and District Industrial Councils, they should examine this experience with a view to the institution of Works Committees on proper lines, in works where the conditions render their formation practicable.

.....

In order to insure uniform and common principles of action, it is essential that where National and District Industrial Councils exist the Works Committees should be in close touch with them, and the scheme for linking up Works Committees with the Councils should be considered and determined by the National Councils.

The plan which the Whitley committee recommended, and which is now being adopted by the industrial organizations of Great Britain, provides for the formation of "Joint Standing Industrial Councils in the several industries where they do not already exist, composed of representatives of employers and employed, regard being paid to the various sections of the industry and the various classes of labor involved."

The plan presupposes complete organization on both sides. It is not between employers and employees that relations are to be formed, but between unions and employers' associations. Only where such organizations do not exist, does the government directly intervene; and then only to establish a minimum

⁴ Report Cd. 9001, Oct. 18, 1917.

wage and encourage the formation of organizations. The whole thought of the plan is to integrate existing organizations into the social structure, standardize their functions, and assist them to operate in an orderly manner.

The government exercises no authority, requires no uniformity, encourages complete autonomy, but makes the councils the official spokesmen for the industry in recommending legislation. At the same time attention is called to the fact that "the State never parts with its inherent overriding power, but such power may be least needed when least obtruded."

A hierarchy of bodies is suggested, with a national industrial council at the top and subordinate district councils and works committees. The methods by which these various bodies are correlated varies according to the trade.

Opposition to Compulsory Arbitration

Even in the settlement of disputes, the committee expresses itself against compulsory arbitration. It says: ⁵

We are opposed to any system of compulsory arbitration; there is no reason to believe that such a system is generally desired by employers and employed and, in the absence of such general acceptance, it is obvious that its imposition would lead to unrest. The experience of Compulsory Arbitration during the war has shown that it is not a successful method of avoiding strikes, and in normal times it would undoubtedly prove even less successful. Disputes can only be avoided by agreement between employers and workers and by giving the latter a greater measure of interest in the industry advocated in our former reports; but agreement may naturally include the decision of both parties to refer any specified matter or matters to arbitration, whether this decision is reached before or after a dispute arises.

For the same reason we do not recommend any scheme

⁵ Report Cd. 9099, Jan. 31, 1918.

relating to conciliation which compulsorily prevents strikes or lock-outs pending inquiry. But it is obviously possible and desirable that in some instances arrangements should be voluntarily made in organized trades for holding an inquiry before recourse to extreme measures; and we suggest that the Ministry of Labor should be authorized to hold a full inquiry when satisfied that it was desirable, without prejudice to the power of the disputing parties to declare a strike or lock-out before or during the progress of the inquiry.

There is much in this conclusion of the British committee that is worthy of the closest study. It is the result of the judgment of experienced observers representing all phases of the industrial situation. It expresses the opinion of men and women who have observed a long history of efforts at compulsory settlement of labor differences.

Constructive Task of Joint Management

Another helpfully suggestive phase of the Whitley plan is its insistence upon the constructive work of the proposed joint bodies. It is impossible to overemphasize the importance of this point. If there are many temporary and local failures of joint management (as there almost certainly will be), the cause of failure will usually be that the management has failed in its function of leadership in constructive thought. The joint bodies will not have been furnished with material to act upon. They will be left to growl and grumble over little differences, instead of being supplied with big constructive common problems to solve.

Joint management will not function efficiently without a good planning department, any more than will a production department. If the employer's side sits down and waits for all the suggestions to come from the side of labor, it will probably receive many suggestions that it will not approve. But if the employer's representatives make good on their claim

to be the leaders of industry by presenting carefully worked-out programs for the improvement of production and the conditions of work, they will enlist the instincts of craftsmanship, loyalty, and group solidarity on the side of joint management and produce results commensurate to the combined abilities of the industrial group.

Questions for Joint Consideration

The Whitley committee realized its function as the first and temporary general staff of such a campaign, and laid down a list of questions for suggested consideration by joint bodies. This list might well be posted conspicuously, as a guide to policy, in the plants now experimenting with joint management. It proposes the following subjects: ⁶

1. The better utilization of the practical knowledge and experience of the workpeople.

2. Means for securing to the workpeople a greater share in and responsibility for the determination and observance of the conditions under which their work is carried on.

3. The settlement of the general principles governing the conditions of employment, including the methods of fixing, paying and readjusting wages, having regard to the need of securing to the workpeople a share in the increased prosperity of the industry.

4. The establishment of regular methods of negotiation for issues arising between employers and workpeople, with a view both to the prevention of differences, and to their better adjustment when they appear.

5. Means of ensuring to the workpeople the greatest possible security of earnings and employment, without undue restriction upon change of occupation or employer.

6. Methods of fixing and adjusting earnings, piecework prices, etc., and of dealing with the many difficulties which arise with regard to the method and amount of payment

⁶ Report Cd. 8606, Mar. 8, 1917.

apart from the fixing of general standard rates, which are already covered by paragraph 3.

7. Technical education and training.

8. Industrial research and the full utilization of its results.

9. The provision of facilities for the full consideration and utilization of inventions and improvements designed by workpeople, and for the adequate safeguarding of the rights of the designers of such improvements.

10. Improvements of processes, machinery and organization and appropriate questions relating to management and the examination of industrial experiments, with special reference to co-operation in carrying new ideas into effect and full consideration of the workpeople's point of view in relation to them.

11. Proposed legislation affecting the industry.

Testing the Whitley Plan

This plan is now meeting the test of experience, and, as might be expected, it is almost nowhere proceeding in the symmetrical form outlined by the committee. Each trade is adjusting the plan to its own problems and previous history. This method of progress is much more apt to insure final success, but it offers little opportunity to draw broad, general conclusions at an early stage. By the middle of 1920, between three and five million employees were working under some form of joint management in Great Britain. The variation in the figures reflects the variety of forms. The lower number represents those who are formally registered under Whitley councils. The higher figure includes very many industries that were already working under joint agreements or have adopted plans peculiar to themselves, many of which closely resemble the Whitley plan, and do not yet care to change.

The whole plan is being subjected to a most searching examination, discussion, and criticism, and tested by experiment such as always precedes a great fundamental change in

industrial organization. It is significant that the criticisms are largely directed at details, or are based upon preconceived social theories and panaceas, and are not directed against the general principle of joint management.

The Whitley Plan and Building Trades

One of the most interesting experiments is that which is being conducted in the building trades. These trades have a long history of collective bargaining and joint action, are thoroughly organized on both sides, and have a well-trained leadership. A recent description of this plan, which now embraces about 97 per cent of the capital and personnel in this industry, says:⁷

The Building Trades Parliament consists of 132 members; 66 being elected by the 22 trade unions of the building industry, approximately in proportion to their numerical strength; and 66 elected by the 17 associations of building trades employers, roughly *pro rata* with the number of operatives normally employed by their members. The chairman is a member himself, and therefore has a vote, but not a deciding vote. No representatives are appointed by the state, the whole plan being essentially self-government. It is the only industrial council that has omitted the word "joint" from its title, has set out to "realize the organic unity of the industry as a great national service," and has the courage to take decisions by a majority of the whole council, instead of requiring a majority of the council on both sides, which is the ordinary Whitley council practice.

This is a fundamental matter. The Whitley councils, as at present constituted, have recognized as permanent the very barrier between the existing "sides" in industry that the industrial parliament scheme was designed to break and that the Building Trades Council has already broken, at any rate to some extent.

⁷ Malcolm Sparkes, *The Nation*, Jan. 24, 1920.

. . . . Another feature in which the Building Trades Parliament is unique is its absolute exclusion of disputes. Its function is constructive and nothing but constructive; it is there to build the new industrial order, and for nothing else. Disputes must be dealt with, as heretofore, by the Building Trades' Conciliation and Demarcation Boards (which are somewhat similar to the newly constituted American Board of Jurisdictional Awards) or by any other methods that may be thought to be advisable, not for a moment excluding strikes. Under no circumstances can the Building Trades Parliament arbitrate; but, although it cannot touch disputes it can always bring forward constructive measures to remove their underlying cause.

The committee outlines proposals designed to lay the "true foundation for such a final consummation." It proposes that the overhanging fear of unemployment, which has had such a demoralizing effect on both the character of the workman and the quality of his work, shall be completely and finally removed, in order that he may whole-heartedly give of his best. To secure this it recommends that the industry should establish unemployment pay for the whole of its trade union personnel, and that the necessary funds should be raised, as a first charge on production, by means of a weekly percentage on the wage bills, to be paid by each employer to a joint committee of employers and employees. Although collected by a joint committee, the unemployment pay is to be distributed by the trade unions, in accordance with regulations prescribed by the Building Trades Parliament, the scale varying from full wages for a man with a wife and four children to half wages for a single man.

The committee then proposes that the rate of interest paid for the hire of capital in the industry should be limited—the scale to rise and fall with the average annual yield of the best government stock—and that subject to certain conditions of approval and control, it should be guaranteed. It further recommends that all "owner managers" should receive salaries "commensurate with their ability," and subject to periodical revision of a joint committee. And finally it suggests that the surplus earnings of the industry should be publicly declared every year and devoted to common

services controlled by the industry as a whole through its industrial council. Such services would include the establishment of a great development fund for the industry, from which loans could be obtained by members; education and research; and superannuation schemes for the whole registered personnel of the industry.

Joint Management of Government Work

One of the most interesting phases of the Whitley plan has been its application to government work. The municipalities took it up quickly. The city of Bradford, with nearly 7,000 employees, including teachers, clerks, and laborers in the various public works, such as street cars, gas, electric, and water works, established a council of 32 members. One-half were appointed by the municipality from the managerial staff and one-half were elected by the respective sections of employees. The municipalities have joined to form national industrial councils. Some of these are formed by industries; others include all municipal employees not belonging to trades covered by these special industrial councils.

Great Britain. The British government is rapidly extending the plan to apply to the entire civil service. Many difficulties are met with in this field, and many problems remain to be solved. The lines of division are not always clear. The teachers are discussing how they can best sectionalize their industry so as to insure representation and effective action in all grades up to, and including, the great universities. Many government employees are already included in existing trade organizations and do not fit into the new schemes. At every point new difficulties are appearing and meeting with solutions, or with experiments that are expected to produce solutions.

France. Other nations are also experimenting with plans of joint management. Such a plan was put into operation in France by Albert Thomas while he was Minister of Muni-

tions. Shop committees, known as *délégués des ateliers*, were generally introduced, and formed the basis of some systems of joint management that are still developing.

Canada. In Canada, evolution is proceeding much the same as in the United States. There are shop councils, collective agreements, and the beginnings of a wider organization similar to that of Great Britain. A royal commission has given unqualified indorsement to the Whitley plan and urged the development of joint management.⁸

United States. In the United States a works council was introduced into the Rock Island arsenal, and its working highly approved in a report of the Secretary of War.⁹ The Industrial Conference, of which the Secretary of Labor, W. B. Wilson, was chairman and Herbert Hoover vice-chairman, gave unrestricted approval to joint management through employee representation and elaborated a plan for voluntary tribunals to co-operate in settling industrial grievances. It agreed unanimously with British experience in opposition to compulsion. There are many indications that the opposition of the trade unions to joint management is disappearing.

Germany. In Germany there have been many schemes carried partly into effect looking to the establishment of joint management under government direction and control.¹⁰ The new government provided for the compulsory establishment of joint councils in all industries having more than 10 employees.¹¹

Belgium. Next to Great Britain, the most important developments in this field have been in Belgium. The remarkable recovery of this nation after the war has been one of the

⁸ *Monthly Labor Review*, Sept. 1919, pp. 19, 36-42.

⁹ *Industrial Management*, Nov. 1919.

¹⁰ *Monthly Labor Review*, Sept. 1919; Daily Commerce Reports, Sept. 27, 1919.

¹¹ *Monthly Labor Review*, Apr. 1919, pp. 125, 126.

most striking facts of the reconstruction period. One of the fundamental reasons for that recovery, with its rapid increase in production and absence of industrial struggles, is found in the establishment of industrial councils.¹²

These councils, like those under the Whitley plan, are formed directly from representatives of the unions and the employers' associations in equal numbers. They differ from the British organizations in the addition of representatives of the government, selected by the Department of Industry and Labor. There is, however, the same lack of uniformity in details that everywhere accompanies such a growing movement toward democracy. They were preceded by a large variety of systems of shop councils and governmental bodies, most of which are now giving way to what seems to be the higher stage of organization.

The same result has followed their establishment as has accompanied industrial democracy elsewhere. Both sides show a tendency to shed their weapons. Efficiency systems are being introduced with the eager assistance of the employees. Some of the largest unions have fought attempts at raising wages, except for the lowest paid workers, on the ground that such action results in higher prices. Effort has, instead, been directed at reducing prices through governmental action, greater efficiency, and co-operative trading.

New View of the Labor Problem

Joint management introduces a new, and, compared with the former attitude, a revolutionary view of the labor problem, which hitherto has been looked upon as a struggle, a conflict of forces for power and product. The new attitude does not entirely abolish the struggle; it does not bring the millennium. But it makes the labor problem fundamentally a

¹² Henry de Man, Industrial Councils in Belgium, *Survey*, July 3, 1920.

question of production and adjustment. It deals with immediate relations within the plant, with improvements in the machinery of production, with greatest emphasis upon the human elements.

The result of focusing attention upon processes, persons, and their relations at the actual point of production, is that many of the old difficulties fade away. Heat gives way to light. Conflict is supplanted by investigation and co-operation. When the problem of labor relationships is attacked in detail, theories, schemes, slogans, symbols, and the weapons and passions of battle give place to scientific study and discussion.

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